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Herniated Lumbar Intervertebral Disc—Cutaneous Hyperalgesia as an Early Sign

By

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SPURLING¹ has found that the back problem is one of the most serious of all military-training-period problems. Runners of obstacle courses, aviators, carrier pilots, parachute troopers, jeep drivers, and tank men are especially vulnerable to back injury. Love² considers that herniated nucleus pulposus (ruptured intervertebral disc, hereafter abbreviated HNP) occurs among the armed forces with a frequency sufficient to warrant special consideration. Only a fraction of all lame backs in the armed services will be due to actual root compression, however.

In the United States Public Health Service (Marine) Hospitals, the differential diagnosis of back pain is also vital, because of the many disc syndromes among American and foreign seamen and Bureau of Employment Compensation patients, especially postal employees. In a general sense, improvement of diagnosis and prognosis in disc disease is of increasing importance, since lateral rupture of lumbar discs is the lesion most often treated by neurosurgeons.

The diagnosis of HNP, depending on classical features of history and physical examination, can usually be established without the refinements of chronaxie determination,

lumbar myelography and/or exploratory laminectomy. Cutaneous sensory alterations and tendon reflex changes in specific nerve root distributions are relied on heavily.

Most references list only hypalgesia or hypesthesia under objective sensory alterations in HNP.^{3,4,5} Criteria of the Mayo clinic include "sensory loss," and Ray⁶ lists paresthesias and "numbness" as being typical. Keegan⁷ found that the nerve root most commonly compressed by HNP is the first sacral, and that dermatome hypalgesia and loss of the Achilles tendon reflex are typical of this lesion. Craig and Walsh⁸ report "sensory loss" in 22% of HNP and 64% of intraspinal tumors. This refers to 285 cases in which "sensory changes" were present, but does not clearly indicate whether the remaining 78% of patients had "hypersensitivity" phenomena.

Spurling and Grantham⁹ list "hyperesthesia" under diagnostic signs for disc protrusions as follows:

Third lumbar interspace: 4th and 5th lumbar dermatomes

Fourth lumbar interspace: 5th lumbar and 1st sacral dermatomes

Fifth lumbar interspace: 1st and 2nd sacral dermatomes.

There was no further description by these authors of the specific sensory modality alteration under the general term "hyperesthesia."

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Burns and Young¹⁰ state that L2-L3 disc protrusions produce "signs of irritation of the femoral nerve and not of the sciatic" but do not specify hyperalgesia as an objective sign of such irritation.

In the absence of a previous report on the subject, this study was done to determine whether or not cutaneous hyperalgesia and hyperesthesia are part of the disc syndrome, and if so, to characterize and describe their appearance.

In a consecutive series of 50 patients with surgically proven HNP, 31 exhibited definite cutaneous hyperalgesia during the course of illness. This phenomenon occurred very early in the course and usually gave way later to typical hypalgesia, thus explaining the vagueness of some previous reports.

Cutaneous hyperalgesia is a sign of posterior spinal root irritation,¹¹ and is conceived of here as an increased response or sensitivity to sharp (pinprick) stimulation of the skin. Hyperesthesia similarly is an increased response to light touch.

MATERIAL AND METHODS

Seventy patients with low back pain were studied consecutively. Fifty of these had surgically proven HNP. Of these, 45 were males and 5 were females. The histories and physical examinations were carried out by the surgical outpatient staff, orthopedic resident and intern, a consultant in orthopedics, and the author.

In all cases, light pin scratch was adjusted so that the patient identified it as sharp but not painful, reporting definite increase in sharpness as it passed from a normal to a hyperalgesic zone. In some cases a neurological pinwheel or Davis algesiometer¹² (fashioned from a loose-fitting syringe plunger with needle affixed to its end, sliding easily in the barrel) were employed. Camel's hair brushes were used to test light touch.

RESULTS

(See *Discussion* for analysis of results)

Out of 50 patients with proven HNP, 31 (62 per cent) had early cutaneous hyperesthesia. Eight (16 per cent) had early hyper-

algesia and hyperesthesia, and one had hyperalgesia with equivocal hyperesthesia. In no case was there early hyperesthesia without hyperalgesia. Three of these 31 patients were white females, 27 were white males and 1 was a yellow male. Age range was 23-59, average 41.

Hyperalgesia was usually found in the dermatome next below the level of the involved disc. In 29 patients, decreased cutaneous sensitivity to touch and pinprick in the same area eventually developed prior to surgery. This occurred earlier in those with decreased tendon reflexes, prolonged chronaxies, or muscle atrophy. Of the 19 disc patients without early hyperalgesia, only 4 had hypalgesia or hypesthesia during their course. None of the 20 patients without HNP had hyperalgesia.

In this series, the longest period during which hyperalgesia persisted was 3 months. In one case with early hyperalgesia and remission (No. 10) pain recurred and re-examination revealed no sensory abnormalities. In another patient (No. 9) there was hyperalgesia in one dermatome (S3) and hypalgesia in S2. When symptoms were relieved early by conservative therapy (example No. 12) hyperalgesia was also temporarily removed. This was not true of ensuing hypesthesia or hypalgesia, even though pain might have been momentarily relieved by conservative measures. There was no correlation in this series between the location or duration of hyperalgesia and the presentation of the HNP, whether central or lateral.

Hyperalgesia in one case occupied the distribution of the lateral femoral cutaneous nerve, probably representing meralgia paresthetica.¹² When back flexion was found to relieve pain, sensory testing revealed diminished hyperalgesia.

CASE SUMMARIES

1. (USPHS No. 43730), white man, age 34.

History: Slipped on right foot while carrying a heavy box. Pain, right lumbosacral area, radiating into right buttock after 2 days.

Physical Findings: *Hyperalgesia* right buttock. Flat lumbar curve. Tender L4-L5-S1

interspaces. Spasm paravertebral muscles. No atrophy. "Lasegue"* sign positive on right. Straight leg raising^f positive 35 degrees right, 85 degrees left.

Hospital Course: Conservative therapy yielded no improvement, one week. Lumbar myelogram revealed HNP L5-S1. Right hemilaminectomy revealed HNP L5-S1.

Remarks: Post-operative numbness posterior right thigh, lateral right foot. Decreased right Achilles Tendon reflex.

2. (USPHS No. 21834), white man, age 54.

History: Low back pain, unknown cause. Daily lifting at work. Onset of back pain on coughing, with inability to stand erect.

Physical Findings: Tender L4-L5-S1 areas. No spasm. Favors left lower extremity in walking. *Hyperalgesia* left thigh to knee, lateral left leg, and left great toe. Weak left extensor hallucis. "Lasegue" positive left. Quarter inch atrophy left thigh and calf. Decreased Achilles tendon reflex bilaterally, greater decrease on left.

Hospital Course: Hyperalgesia altered to hypalgesia same distribution 6 weeks post-admission. Pantopaque lumbar myelogram revealed filling defect left L4-L5. Hemilaminectomy revealed HNP L4-L5, neg. L5-S1.

Remarks: Uneventful recovery.

3. (USPHS No. 35091), white man, age 29.

History: Struck in back by gangplank. Severe spastic low back pain with trunk in flexion, 2 months duration, increased by coughing, radiating to left posterior leg.

Physical Findings: *Hyperalgesia* left but-

tock. Tenderness L5-S1, immobile L5, Naffziger's sign[‡] positive left, straight leg raising positive left 35 degrees. Decreased left Achilles tendon reflex.

Hospital Course: Lumbosacral X-ray revealed narrow L3-L4 interspaces, diagnosed "arthritis." Lumbar myelogram revealed extensive HNP L4-L5 left with incomplete obstruction subarachnoid space. Oblique views revealed loss of lumbar lordosis, questionable osteophytosis of adjacent lateral margins of L3-L4 bodies. Chronaxie elevated, left extensor hallucis. Hemilaminectomy revealed left L4-L5 HNP.

Remarks: Uneventful recovery.

4. (USPHS No. 39278), white man, age 36.

History: Back pain after lifting. Hospitalized one week, returned to work. *Hyperalgesia* left anterolateral thigh at this time. Recurrence back pain radiation left leg.

Physical Findings: Paravertebral muscle spasm. Pelvic tilt to right. Tender sciatic nerve, left buttock. Reflexes present, equal. Left extensor hallucis weakness. Positive "flip test"*** left.

Hospital Course: No relief from conservative therapy. Lumbar myelogram revealed HNP L4-L5 left. Hemilaminectomy revealed same.

Remarks: Improved post-operatively.

5. (USPHS No. 40657), white woman, age 33.

History: Low back pain radiating to posterior aspect of right leg and lateral aspect of right foot, aggravated by coughing and sneezing.

Physical Findings: *Hyperalgesia* right foot, lateral aspect. Back pain increased by extension and flexion. Absent right Achilles tendon reflex. Paravertebral muscle spasm

* "Lasegue's sign" generally follows passive flexion of each leg at hip joint with full extension maintained at the knee. Normally the flexion angle at the hip should attain 70°. A positive sign is the report of pain with resistance to further elevation before 70°. There are other lesser-known signs by the same name,¹³ and Wartenberg¹³ spiritedly asserts that Lasegue did not describe "his" sign.

† Similar to "Lasegue" sign except that knee may be flexed first to allow full hip flexion, and the angle is then determined at which knee can be extended comfortably. Thus it resembles the Kernig test, which is positive when the angle between calf and thigh in maximal flexion cannot be opened to 135° (1½ right angles).

‡ Back pain on compression of jugular veins in neck, resulting in increased intra-theal pressure.

*** A test for sciatic compression. With the patient sitting, the flexed knee and dependent relaxed leg are extended and elevated toward the chin. A positive test is identical with the positive "Lasegue" or straight leg raising test. Malingerers will not recognize the alteration in position and may report a negative "flip" with a positive "Lasegue."

with tender L5-S1. Patrick's sign* positive right.

Hospital Course: Lumbar myelogram revealed large HNP L5-S1. Right hemilaminectomy revealed same.

Remarks: Uneventful recovery.

6. (USPHS No. 21942), white man, age 41.

History: Pulling injury with sharp pain, low back. Immobilized at time of accident. *Hyperalgesia* of both thighs at this time. One year later, hemilaminectomy with decompression venous varicosities right L4-L5. Six months later radiating pains both legs increased by sneezing and coughing.

Physical Findings: Anterior flexion of trunk limited fifty per cent. Straight leg raising positive 90 degrees left, 70 degrees right. "Lasegue" positive bilateral, more right. Half inch atrophy right leg. Sensory normal.

Hospital Course: Chronaxie prolonged, right extensor hallucis. Lumbar myelogram revealed bulging defect right L4-L5. Hemilaminectomy right L4-L5 and L5-S1 revealed HNP at both sites.

Remarks: Moderate post-operative back spasm. Urinary tract infection. Radicular thoracic pain, later improved.

7. (USPHS No. 25347), white man, age 34.

History: Injured back 10 years, before admission. Spontaneous onset left lumbar and left leg pain.

Physical Findings: *Hyperalgesia* left buttock.

Hospital Course: One month, tenderness L5, limitation left lateral bending. Lumbar myelogram "equivocal." Physical therapy evoked recurrence of pain. Hypesthesia left calf. Exploratory laminectomy revealed "degenerated L4-L5 disc adherent to nerve root."

Remarks: Uneventful recovery.

* With the patient supine the thigh is flexed and the ankle placed high on the opposite extended leg. The knee is pressed downwards and outwards, causing abduction and external rotation of the hip joint. In hip disease, sacro-iliac arthropathy, and meralgia paresthetica, pain is reported before the knee reaches the level of the bed.

8. (USPHS No. 25854), white man, age 42.

History: Back trauma with lumbosacral pain radiating to left buttock. Back pain increased in 24 hours, radiating to right leg, relieved slightly by diathermy.

Physical Findings: Slight lumbosacral tenderness, *left thigh hyperalgesic*. Limited left range of motion. "Flip" positive left. Straight leg test positive 35 degrees left.

Hospital Course: Lumbosacral x-rays revealed narrow L5-S1 posteriorly. Lumbar myelogram revealed HNP L5-S1, and L4-L5. Exploratory laminectomy revealed same.

Remarks: Uneventful recovery.

9. (USPHS No. 4350), white woman, age 45.

History: Back pain following lifting. Pain cleared and recurred one month later upon lifting, radiating to posterior left leg, increased by coughing.

Physical Findings: Paravertebral spasm, tender left trunk to palpation, slight atrophy left calf, straight leg positive 45 degrees left, "Lasegue" positive left, absent left Achilles tendon reflex. *Hyperalgesia* left S3 dermatome, hyperalgesia left S2.

Hospital Course: Lumbar myelogram revealed large extruded HNP left L5-S1, hemilaminectomy revealed same.

Remarks: Uneventful recovery.

10. (USPHS No. 30152), white man, age 59.

History: Acute lumbosacral pain of 2 months duration without known injury. Radiation to right hip and intermittent right gluteal spasm. *Hyperalgesia* right buttock. Six month remission on vitamin B₁₂ therapy. Pain recurred.

Physical Findings: Marked limitation of back motion. Flexion produces pain right thigh. Pain on pressure L4-L5. No sensory abnormalities.

Hospital Course: Lumbosacral x-ray revealed straightened lumbar lordosis. Lumbar myelogram "suggestive of L4-L5 defect, right." Exploratory laminectomy revealed bulging lateral HNP L4-L5.

Remarks: Stormy post-operative course. Six months serosanguinous drainage from

operative site. Occasional spasm right leg, abating.

11. (USPHS No. 31356), white man, age 47.

History: Recurrent pain, left leg, after lifting injury to back. No leg pain at time of injury, but *hyperalgesia* left posterior thigh. Three months later, pain left buttock and posterior thigh, increased by coughing.

Physical Findings: Small area hypalgesia left buttock. Weak left extensor hallucis. "Flip" positive left, straight leg raising positive left 30 degrees. Limited flexion left hip on thigh.

Hospital Course: No improvement on conservative management, Lumbar myelogram revealed filling defect L5-S1, directed posteriorly. Chronaxie prolonged, left extensor hallucis. Left hemilaminectomy revealed extruded HNP L5-S1.

Remarks: Slight post-operative weakness left foot dorsiflexors. Ambulatory pain left calf. Shortening left Achilles tendon, responding well to physical therapy.

12. (USPHS No. 37482), white man, age 41.

History: Pain right buttock, right leg radiation, following lifting. *Hyperalgesia* right buttock, right posterior thigh, relieved by conservative therapy. Pain continued. Lumbar myelogram revealed "large HNP" right, found by operation at L4-L5. Post-operatively there was numbness right 3, 4, 5 toes and inferior heel, improving in one month. Pain recurred in right thigh.

Physical Findings: Hypalgesia right posterior thigh. "Flip" positive left. Right Achilles tendon reflex absent. Chronaxie normal. Lumbar myelogram revealed defect right L4-L5. Hemilaminectomy revealed large right HNP L4-L5.

Remarks: No residual pain.

13. (USPHS No. 45963), white male, age 25.

History: Fourteen months low back pain, radiating to left buttock, left leg, increased by coughing.

Physical Findings: Limited forward flexion. *Hyperalgesia* left buttock and heel.

Hospital Course: Hypalgesia developed same distribution (left buttock and heel) after three weeks. Chronaxie left extensor hallucis 5.0 msec., right 10.0 msec. Lumbar myelogram revealed L5-S1 defect left, hemilaminectomy revealed HNP same.

Remarks: Uneventful recovery.

14. (USPHS No. 30172), white man, age 40.

History: Lumbosacral strain after lifting. Posterior right leg pain.

Physical Findings: *Hyperalgesia* right buttock, right posterior thigh. "Flip" positive right, straight leg positive right 45 degrees. Absent right Achilles tendon reflex.

Hospital Course: Elevated chronaxie right extensor hallucis. Lumbar myelogram revealed extruded right HNP L5-S1, laminectomy revealed same.

Remarks: Uneventful recovery.

15. (USPHS No. 39573), white man, age 49.

History: Lifting injury of back with pain left buttock.

Physical Findings: *Hyperalgesia* left lateral thigh, hypesthesia left calf.

Hospital Course: Atrophy left calf after one month. Lumbar myelogram revealed extruded HNP left L4-L5. Chronaxies extensor hallucis left 15.0 msec., extensor digitorum longus 4.0 msec., peroneus brevis 5.0 msec. Laminectomy revealed HNP left L4-L5.

Remarks: Uncomplicated convalescence.

16. (USPHS No. 32353), white man, age 53.

History: Lifting mail sack, injured low back.

Physical Findings: Straight leg raising positive right 30 degrees. *Hyperalgesia* right posterior thigh.

Hospital Course: Lumbar myelogram revealed defect right L4-L5. Chronaxie prolonged, right extensor hallucis. Hemilaminectomy revealed HNP right L4-L5.

Remarks: Uneventful recovery.

17. (USPHS No. 75), white man, age 45.

History: Lifting injury with pain low back and posteriorly, both thighs.

Physical Findings: Bilateral paravertebral spasm. Straight leg raising positive 60 degrees right, 30 degrees left. "Lasegue" positive bilaterally. 0.5 cm. atrophy left thigh and left calf. Left Achilles tendon reflex absent. *Hyperalgesia* left lateral thigh.

Hospital Course: Hypalgesia developed left lateral thigh, one month. Lumbosacral x-ray revealed minimal degenerative arthritic changes, narrowing of L4-L5. Gradual improvement on conservative therapy. Chronaxie increased, left extensor hallucis and peroneus longus. Re-admitted in three months with tender right sciatic notch. Hypesthesia and hypalgesia over right lateral thigh. Lumbar myelogram revealed defect L4-L5, laminectomy revealed HNP right L4-L5, L5-S1.

Remarks: Moderate post-operative pain, radiating into right leg.

18. (USPHS No. 26492), white man, age 51.

History: Fell, injuring back. Pain right low back, radiating to right ankle.

Physical Findings: Paravertebral spasm. Tender L5-S1. Minimal left scoliosis. Straight leg raising positive 30 degrees bilaterally. "Lasegue" positive, Patrick's sign positive, bilaterally. *Hyperalgesia* and *hyperesthesia* lateral right lower leg.

Hospital Course: Lumbosacral x-rays revealed narrowing L5-S1. Lumbar myelogram revealed right-sided defect L4-L5. Chronaxies not done. Three months later, just before laminectomy, hypesthesia and hypalgesia right lower leg, laterally. Hemilaminectomy revealed HNP L5-S1, exploration L4-L5 negative.

Remarks: Uneventful recovery.

19. (USPHS No. 32907), white man, age 54.

History: Stretch injury, left hip, with pain radiating left buttocks to left leg and "pins and needles" left lateral lower leg.

Physical Findings: *Hyperesthesia* and hy-

peralgesia lateral aspect left thigh. Hypalgesia left lower leg. Left lateral flexion causes pain left leg. Straight leg raising positive 90 degrees bilaterally. 0.5 cm. atrophy left calf. Left patellar and Achilles tendon reflexes absent.

Hospital Course: Lumbar myelogram two weeks after admission. Midline HNP L3-L4, L4-L5 with calcification of posterior disc aspect (L4-L5). Lumbosacral x-ray revealed narrow disc space with degenerative arthritis L3-L4 "strongly suggestive of HNP." Left hemilaminectomy revealed HNP at L4-L5, none at L3-L4.

Remarks: Post-operatively there was 2.0 cm. atrophy left thigh and 1.0 cm. atrophy left calf, with absent patellar and Achilles tendon reflexes on left.

20. (USPHS No. 18589), white man, age 34.

History: One year spontaneous low back pain, radiating to right thigh and knee.

Physical Findings: L5 tenderness to palpation. Thoracic kyphosis. Forward flexion 30 degrees, extension 5 degrees. *Hyperalgesia* right lateral femoral cutaneous nerve distribution (meralgia paresthetica).

Hospital Course: Explored after one month, with HNP found right L5-S1.

Remarks: Post-operative pain in right L1 distribution, numbness L1 distribution right leg. Gradual improvement on Goldthwaite belt.

21. (USPHS No. 42612), white man, age 34.

History: Stooping injury. Pain low back, radiating to right hip, posterior right thigh, aggravated by coughing, relieved by bedrest.

Physical Findings: Straight leg raising positive 85 degrees right, decreased right Achilles tendon reflex. *Hyperesthesia* and *hyperalgesia* of right posterior thigh.

Hospital Course: Lumbar myelogram revealed right L4-L5 defect. Sixteen days later, hypalgesia and hypesthesia right posterior thigh. Hemilaminectomy revealed HNP right L4-L5.

Remarks: Uneventful recovery.

22. (USPHS No. 26320), white man, age 35.

History: Eight year history lumbosacral pain radiating to left leg, increased by coughing.

Physical Findings: Left lumbar paravertebral spasm. Tender L4-L5, L5-S1. Straight leg raising positive right 80 degrees, left 60 degrees. "Lasegue" positive left, Patrick's sign positive left. Weak left extensor hallucis. *Hyperalgesia and hyperesthesia* left lateral thigh and calf.

Hospital Course: Hypalgesia and hyperesthesia same distribution, 5 weeks after admission. Lumbar myelogram revealed questionable defect L4-L5, L5-S1, left, both HNP found at laminectomy.

Remarks: Recurrent pain one year later. Positive "flip" left, straight leg raising positive 45 degrees left. Paresthesias left lateral foot. Left Achilles tendon reflex decreased. Improved after vitamin B₁₂ one month. Pain recurred three months later, with bilateral depression of Achilles tendon reflexes. Elevated left extensor hallucis chronaxie. Laminectomy revealed large left HNP, L4-L5. Small loose inferior facet on left L2 excised. Uneventful recovery.

23. (USPHS No. 45321), white woman, age 43.

History: Stooped with snapping sensation left lumbosacral area, pain radiating to posterior left thigh.

Physical Findings: Flexion impossible. Spasm of left thigh muscles, increased by cough. Left paravertebral spasm. Straight leg raising positive 45 degrees left, "flip" positive left. Equivocal *hyperesthesia and definite hyperalgesia* over left gluteal region.

Hospital Course: Lumbosacral x-ray revealed narrowing L5-S1. Lumbar myelogram three weeks later revealed defect left S5-S1. Hypesthesia and hypalgesia left posterior thigh. Hemilaminectomy two weeks later revealed left HNP L5-S1, and no HNP at L4-L5.

Remarks: Hypesthesia and fleeting left posterior thigh pain.

24. (USPHS No. 43926), white man, age 32.

History: Diabetic with acute low back pain while loading truck. Pain radiating to left posterior thigh.

Physical Findings: Slightly limited range of motion. Straight leg raising positive 30 degrees left, 50 degrees right. *Hyperalgesia* left lateral thigh.

Hospital Course: Area of hyperalgesia became hypalgesic two weeks after admission. Lumbar myelogram revealed large extruded HNP L5-S1, left, found at laminectomy.

Remarks: Uneventful recovery.

25. (USPHS No. 6700), yellow race, man, age 53.

History: Back pain for two months following direct trauma, radiation to both posterior thighs.

Physical Findings: Weakness of both extensores hallucis. Minimal bilateral paravertebral spasm. Bilateral *hyperalgesia and hyperesthesia* in S1 distribution. Flexion of back to 70 degrees, extension to 30 degrees, lateral bending to 20 degrees. Straight leg raising positive 45 degrees right, 60 degrees left.

Hospital Course: Lumbosacral X-rays revealed minimal spurring upper left border L1 and inferior anterior border L1. Lumbar myelogram revealed HNP L4-L5, questionable defect L5-S1. Hemilaminectomy two months later revealed HNP L4-L5 left.

Remarks: Uneventful recovery.

26. (USPHS No. 38902), white man, age 38.

History: One month duration pain, right hip, limp on right, numbness right foot 10 days duration, no history trauma.

Physical Findings: Straight leg raising positive 40 degrees right. "Lasegue" positive right. Achilles tendon reflexes absent bilaterally. *Hyperalgesia* right inferior heel and lower calf. Right sciatic nerve tenderness. Tender percussion L5-S1.

Hospital Course: No improvement on traction. Lumbar myelogram revealed "swollen nerve root L4-L5, questionable L5-S1, right

HNP." Hemilaminectomy revealed HNP at L4-L5 and L5-S1.

Remarks: Uneventful recovery.

27. (USPHS No. 36205), white man, age 46.

History: Back injury with pain and inability to walk. Weakness both lower extremities, greater on right.

Physical Findings: Weakness as above. Right sciatic notch tenderness. *Hyperalgesia and hyperesthesia* right buttock and right upper posterior thigh. Decreased right Achilles tendon reflex. Slight weakness right extensor hallucis. Straight leg raising positive 35 degrees right.

Hospital Course: Lumbosacral x-ray revealed generalized osteoporosis. Two months later there were hypalgesia and hypesthesia over right posterior thigh. Lumbar myelogram revealed lateral HNP, right L4-L5. Numbness developed in right foot and right buttock. Three months later at laminectomy a right HNP was found at L4-L5.

Remarks: Continued post-operative numbness right foot and buttock, with slow improvement.

28. (USPHS No. 18311), white man, age 23.

History: Low back pain, onset while working on cables, radiation right thigh.

Physical Findings: Loss of muscle tone right thigh, minimal atrophy. Right lateral bending produces pain right thigh. Straight leg raising positive 45 degrees right, 55 degrees left. Marked right extensor hallucis weakness. Decreased right Achilles tendon reflex. "Lasegue" positive bilaterally. *Hyperalgesia* right posterior thigh, questionable hyperesthesia.

Hospital Course: Lumbar myelogram revealed large HNP L4-L5, with incomplete subarachnoid block. Questionable HNP at L5-S1. Three weeks later there was hypesthesia of right posterior thigh with no change in pain. Laminectomy revealed HNP L4-L5, right.

Remarks: Uneventful recovery.

29. (USPHS No. 30625), white man, age 41.

History: Injured right buttocks and lum-

bar region in falling. Limping gait, left, pain increased on coughing.

Physical Findings: Heel walking produces limp on left. Five degree list to left. Flat, tender left gluteus maximus. Sciatic notch tender, pain over L5-S1 spinous processes. Extension and lateral bending cause pain over left buttock. Decreased left Achilles tendon reflex. *Hyperesthesia and hyperalgesia* left leg posterolaterally. "Lasegue" positive left.

Hospital Course: X-rays of lumbar spine revealed minimal degenerative arthritic changes with slight narrowing at L5-S1. Lumbar myelogram revealed questionable HNP L4-L5 left. Laminectomy revealed HNP both L4-L5 and L5-S1.

Remarks: Pain of posterior left leg gradually improved.

30. (USPHS No. 38425), white man, age 34.

History: Low back pain, without trauma, radiating to left leg, increased by coughing. Numbness lateral aspect left foot and leg. Progressive weakness left leg.

Physical Findings: *Hyperalgesia* left foot and leg. Slight scoliosis with convexity to left and slight flattening of lumbar curve. Left gluteal fold higher than right. Tenderness to palpation over L4 spinous process. Straight leg raising positive 100 degrees right, 80 degrees left. Slight left pelvic tilt.

Hospital Course: After one month developed hypesthesia lateral aspect left foot and leg, lateral three toes and marked left extensor hallucis weakness. Left Achilles tendon reflex absent, left patellar tendon reflex depressed. Lumbosacral x-ray revealed narrow L5-S1 interspace, lumbar myelography "equivocal". One month later exploratory laminectomy revealed large extruded HNP left L5-S1. L4-L5 no HNP.

Remarks: Slight fever (100°F.) immediately post-operative.

31. (USPHS No. 34961), white man, age 44.

History: Injured back lifting mail sack. pain 16 years previously.

No improvement on traction.

Physical Findings. Left pelvic tilt, flat lumbosacral curve, forward flexion to within 24 inches of floor, spasm of right paravertebral muscles, straight leg raising positive right and painful left at 45 degrees. "Lasegue" positive right. Bilateral decrease of patellar and Achilles tendon reflexes. Right-sided *hyperalgesia* and *hyperesthesia* lateral aspect of lower thigh and upper leg.

Hospital Course: Lumbar myelogram revealed HNP at L4-L5, with defect in right anterolateral portion of dye column. Tractation produced no relief. One month later laminectomy revealed HNP at L4-L5 and L5-S1.

Remarks: Uneventful recovery.

DISCUSSION

Differential Diagnosis of Hyperalgesia with respect to HNP. In addition to posterior root irritation, lumbosacral dermatome *hyperalgesia* may be caused by hysteria, muscle spasm,¹⁴ and hypertrophy of ligamentum flavum¹⁵ although this is contested by Cloward.¹⁶ Signs of radicular irritation are common in extramedullary tumors, and rarely accompany the intramedullary variety.¹⁷ More or less continuous pain follows the distribution of a nerve root, and long the area of pain there are sensations of constriction, hyperesthesia, and tenderness on palpation as well as tenderness on pressure over the spine at the level of the tumor. Objective hypersensitivity may be replaced later by decreased sensitivity. Hemisection of the cord (Brown-Sequard) may produce hyperesthesia instead of anesthesia in the zone supplied by the dermatome, a zone of hyperesthesia above the anesthetic area, both ipsilaterally and contralaterally, bilateral anesthesia, hyperesthesia, or radicular pain in the distribution of the affected segments.¹⁸ According to Stookey¹⁹ protrusions of central discs slightly lateral to the midline produce the Brown-Sequard syndrome.

Strains, sprains, joint diseases, peripheral neuralgias, tumors and inflammatory lesions of bones, cord, meninges, and other contents of the spinal canal, are among the lesions from which HNP must be differentiated.

Bosworth lists the following as the most important items in the differential diagnosis:²⁰ intradural tumor, tuberculosis of spine, carcinoma, facet fracture, femoral osteoid osteoma, trochanteric bursitis.

Spinal tumors may at first produce sensory loss whose upper border may be situated considerably below the level of the lesion. In ependymoma of the cauda equina, herniated disc is in the differential diagnosis. There may be hyperesthesia due to posterior root irritation. In eighteen cases of proven ependymoma of the cauda equina, hyperesthesia was present on the lateral aspect of the leg in one patient, and in the saddle area (S4) in another.³⁰

Physiology of Hyperalgesia with respect to HNP. The peripheral distribution of sciatic plexus roots is best understood by bearing in mind that the lower limb has rotated ninety degrees from its embryonic paddle position, its innervation being from progressively distal segments from great toe to fifth toe. Motor supply, as sensory supply, overlaps considerably, for which reason functional interruption of a single root causes weakness and atrophy rather than paralysis of single muscles. In cord tumor, sensory and motor symptoms are usually in combination, depending on the decussations of sensory fibers.²¹ Symptoms of disc pressure are segmentally localized, however. The transverse localization of lesions with relationship to spinous processes is as follows:

Spinal Segment		Spinous Process
T-12	corresponds to	T-10
L1	"	T-10, 11
L2	"	T-11
L3	"	T-11, 12
L4-5, and S1	"	T-12
S2-5	"	L1

Sensory root bundles are more numerous than the motor root bundles in the lumbar area and consequently are more likely to be involved first by a ruptured intervertebral disc. Further more, where root tension or irritation is associated with nuclear retro-pulsion rather than compression, motor signs may be relatively absent. This usually happens early in the development of HNP, pro-

viding a partial explanation for hyperalgesia. Most of the lesions heretofore considered as causing superficial or deep "hyperesthesia" (hyperalgesia) occur in the posterior columns. Intervertebral ligaments, periosteum and the periphery of discs are supplied with sensory nerves from the ganglia that make up the segmental nerves. Impulses arising from irritation of any of these structures may therefore be referred throughout the distribution of the segmental nerve root, simulating root compression. Rovig found that some non-radicular lesions in the lumbar area may cause slight hypesthesia,¹² which is not inconsistent with later findings in HNP patients. Falconer, Glasgow, and Cole²⁶ hypothesize that sensory changes in sciatica affecting a single dermatome may involve innervation by at least two posterior spinal roots, which would explain the incidence of of hyperalgesia in areas more than one root distant from the lesion found at operation. Hyperesthesia may be present at the level of a lesion even though the threshold be raised. The level for pain and temperature sensations is the most specific, and it may be difficult to delineate a definite level for either tactile or proprioceptive sensations.

Zervopoulos²⁷ used diminution in vibration sense for sharp localization in HNP. Such alterations correlated in 60 cases with the location of herniations at L4-L5 and L5-S1, demonstrated at surgery. Two patients complaining of back pain exhibited loss of vibration sense in both patellae, and laminectomy revealed herniation in the L3-L4 level. In herniations at the L4-L5 interspace there was homolateral reduction of vibration sense over the internal malleolus, and over the external malleolus in L5-S1 herniations. These findings were not present in central herniations.

It is possible that in these patients the period for early hyperalgesia had passed, thus removing the inconsistency of increased and decreased responses due to irritation of the same structure. Further, the possibility is raised that early testing of vibration in hyperalgesic disc suspects may yield valuable

information as to the pathway of vibration sense in the cord, which has recently been under controversy.¹⁸ From data presented here, no conclusions can be drawn.

Detailed charts of dermatomes have been provided by Dejerine, Head, Foerster, and Keegan. Cutaneous reflex zones of hyperalgesia according to Dejerine⁸ are as follows: (from above downward by dermatome)

- T11—superior iliac crest, anterior and posterior
- T12—greater trochanter
- S4 —upper gluteal cleft
- S3 —gluteal mass
- L1 —high lateral thigh
low medial above-knee
- S2 —upper lateral belly of gastrocnemius
- L5 —lateral malleolus
- S1 —medial foot dorsum (1st metatarsal) and medial heel.

Head's data are from herpetic eruptions,¹⁸ and Keegan's from sensory loss following nerve root compression (loss)²⁸. According to Mixter,²² Foerster's method which employed isolation of a single root by rhizotomy of adjacent caudal and cephalic roots (see also Sherrington)²³ provides the most accurate picture of lumbosacral dermatomes. Foerster's data for paresthesia after root irritation are as follows:²⁴

- L1—inguinal region and greater trochanter
- L2—anterior thigh
- L3—knee
- L4—internal malleolus, big toe
- L5—dorsum pedis and toes
- S1—planta pedis and heel
- S2—back of lower limb, popliteal region
- S3—gluteal fold

Friberg and Hult²⁸ have devised the following outline of symptoms and physical signs due to pressure on lumbosacral nerve roots. It accounts nicely for findings such as hyperalgesia in the dermatome below the expected lesion.

Pressure on fourth lumbar root:

1. Pain radiates to hip and anterior thigh, not usually below knee,

2. Decreased or absent patellar tendon reflex
3. Adductor tenderness, thigh.

Pressure on fifth lumbar root:

1. Pain radiates to great toe,
2. No reflex alteration,
3. Paresis of extensor hallucis, occasionally other toe extensors, and often, foot pronators,
4. Altered sensibility of foot dorsum, dorsum great toe, and anterolateral calf. (Herniation usually in fourth space or far laterally in fifth space).

Pressure on first sacral nerve:

1. Pain radiates to heel,
2. Decreased or absent Achilles tendon reflex,
3. Paresis of triceps surae, occasionally atrophy of calf,
4. Altered sensibility posterior calf, inferior heel, lateral foot. (Herniation usually in fifth interspace).

Neri¹⁵ described a method of differentiating spinal lesions consisting of faradic cutaneous stimulation which elicits hyperalgesia of the corresponding dermatome. Direct manual pressure often produces a negative response and offers no clue as to the corresponding underlying pathologic change. Like the rectus abdominis muscles, the erector spinae muscles manifest metameric innervation by the posterior branches of the spinal nerves. Because of this type of innervation, one can recognize changes in response to the electric current limited to that section of muscle that is solely innervated by one posterior branch of a spinal nerve. The cathode is placed in the paravertebral region and slowly moved down the length of the spinal cord, i.e., the vertebral column from the nape of the neck to the sacral area. The potential or quantity of current does not provoke pain. The reaction subjectively is one of formication. In certain areas which are insensible to pressure sensation, pain is elicited when the cathode is placed over the area. The area in which the pain is elicited follows the distribution of the nerve as manifested by metameric

innervation. The zone of hyperalgesia was distinctly limited both superiorly and inferiorly. The dermatome which was hyperalgesic corresponded exactly to a specific spinal root. This sign was valuable in differential diagnosis of lesions of the cauda equina from those of the conus. Faradic cutaneous hyperesthesia is also of value in the early diagnosis of HNP and Pott's Disease. This work was substantiated by post-treatment tests in which it was shown that after removal of compression, the area of hyperalgesia disappeared.

Pathological relationships between HNP and Hyperalgesia. Degeneration and softening of an intervertebral disc result in posterior displacement of the nucleus, bulging of the spinal ligament, and impingement on the nerve root. The structure of the disc being weaker posteriorly, intervertebral pressure forces the nucleus and annulus backward, bulging the posterior spinal ligament into the neural canal. Since the posterior ligament is considerably stronger centrally, the bulging occurs to one side or other of the midline where it compresses the segmental nerve root as the latter approaches its exit through the intervertebral foramen. If the posterior ligament ruptures, the nucleus pulposus and degenerated fibrous annular tissue are extruded into the spinal canal between the anterior cord membranes and the bony vertebral wall, to compress the cord, caudal fibers, or nerve roots.

The posterior longitudinal ligament can thus be a positive factor in increased root irritation. Flexion of the back separates the posterior borders of the vertebral bodies, diminishes compression and widens the intervertebral foramina, thus relieving pain and decreasing hyperalgesia. Annular ruptures and nuclear herniations occur most frequently in the fifth and fourth lumbar discs, since, due to their position in the lumbar lordosis, these are the most severely compressed posteriorly. The first sacral, fifth, and fourth lumbar nerve roots are involved in that order of frequency. A herniated disc generally affects the next root below and not the numerically corresponding root, which at

this level is situated so laterally as to escape the protruded disc. This explains the incidence of gluteal hyperalgesia with L4-L5 lesions.

Edema of the cauda equina can cause signs a dermatome level higher than the actual lesion.²⁹ With herniations below L5, the most frequent late sensory loss is over the lateral aspect of the leg, the dorsolateral and plantar aspects of the foot and the lateral three or four toes. With herniations below L4 the most frequent late sensory loss is over the medial portion of the dorsum and sole of the foot and over the dorsal and plantar surfaces of the great toe.

The evolution of early cutaneous hyperalgesia is conceived of as taking the following steps:

- a. weakening of disc annulus with posterior bulging of nucleus pulposus and irritative impingement on nerve root,
- b. questionable involvement of posterior columns by mechanical forces creating true sensory tract signs of irritation,
- c. "accessory" irritation due to pressure on cord membranes, lips of vertebral bodies, and intervertebral ligaments,
- d. location of hyperalgesia one dermatome below disc level in uncomplicated cases, due to "eccentric" exits of nerve roots relative to vertebral interspaces in lumbosacral area.

Continued pressure then results (hypothetically) in ischemia or necrosis of some posterior root fibers with histological degeneration, subjective numbness or tingling, and hypalgesia or hypesthesia later in the course. Constancy of hyperalgesia as compared to hyperesthesia may indicate a peripheral location of certain fibers (this is *not* the same as suggesting specific pain fibers), or differential thresholds. Change from hyperalgesia to "normal sensory exam" may indicate either temporary remission from irritation, or progress toward hypalgesia. Once the latter appears it remains, its permanence probably reflecting the fact of irreversible damage (not considering regeneration). Case No. 9 dem-

onstrates, with hyperalgesia at S3 and hypalgesia at S2, the overlap of single dermatome nerve supply.

SUMMARY

1. In a group of 70 patients with low back pain, 50 were found to have HNP, identified surgically.
2. Thirty-one of these patients exhibited cutaneous hyperalgesia early in their course. This was found to be present in the next dermatome below the level of the HNP, unless there were two discs, in which case there was multiple cutaneous involvement.
3. *Hyperalgesia is an early diagnostic sign of definite posterior root irritation*, and prognostically is a harbinger of progression of symptoms and the development of hypalgesia and hypesthesia in the same dermatome.
4. From a physiological standpoint hyperalgesia in HNP may be considered as the objective counterpart to referred pain.
5. The data tend to support the hypothesis of Falconer, Glasgow and Cole²⁸ that sensory changes affecting a single dermatome may involve innervation by at least two posterior spinal roots.
6. Further studies of early cutaneous sensory changes (e.g., vibration) in suspected HNP may give valuable information as to localization of these pathways in the spinal cord.

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Progress in Food and Drug Sterilization by Ionizing Radiations*

By

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INTRODUCTION

IONIZING radiation has been suggested as a means of food preservation for many years and has been seriously studied for the last ten. The fact that a sterilization dose results in a temperature rise of a few degrees led to the term "cold sterilization." The process was hailed as the panacea for all food storage problems. Radiation has a different connotation to many people and to some is always associated with harmful effects. I will try to show that the truth lies somewhere between these two extremes.

It is my belief that radiation preservation of foods will supplement present methods in certain areas. These areas will depend upon many parameters and will vary from one economy to another.

There are over one hundred laboratories in this country working on various aspects of this problem. These studies range from basic radiation chemistry on proteins, fats, and carbohydrates to human volunteer feeding experiments. Approximately 18 tons of food per month are processed by radiation for the research program. A large fraction of this work is supported through external contracts with the Food and Container Institute of the Quartermaster Corp and by the Office of the Surgeon General. In addition, less extensive studies are under way in England, Canada, France, and Germany. The extent of the effort behind the Iron Curtain is difficult to ascertain, but judging from published reports and from reprint requests the interest is widespread.

X-rays or gamma rays and high-velocity electrons have been used. It now appears that machine sources will be more economical than radioactive materials in the immediate future. The long-range picture may change with the development of many nuclear-powered generating stations.

The U. S. Army Ionizing Radiation Center at Stockton, California is expected to be in operation in 1960. The plans are for a 24 MeV linear accelerator as an electron source and two million curies of cobalt-60 as a gamma source. This pilot plant will have a capacity of 1,000 tons per month, and Irradiated Products, Inc. was awarded the production and planning contract.

STERILIZATION

The factor affecting radiation sensitivity of microorganisms are incompletely understood. Among them are: species, age, temperature, oxygen, chemical environment, pre-irradiation and post-irradiation treatment. There is no simple relation between heat and resistance. Pre-irradiation has been found to increase the heat sensitivity of many bacterial spores, but pre-heat does not increase the radiation sensitivity of the survivors. The effect of simultaneous heat and irradiation is under consideration. Doses in the range of 3-6 mega rad have been proposed for "commercial sterilization" of most foods. Spores of *Clostridium botulinum* have been found to be among the most radiation resistant of bacteria involved in food processing. A heat-sensitive, pigmented, non-spore-forming coccus has been isolated at Oregon State College from irradiated meat which is as resistant as *Cl. botulinum*.

The equivalent of photoreactivation of ultraviolet-treated cells has not been reported for ionizing radiation, nor has the develop-

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ment of radiation-resistant strains analogous to antibiotic resistance been found. "Radiation pasteurization" is a term applied to killing over 98 per cent of the spoilage organisms by intermediate doses of radiation. Such treatment increases storage time at any temperature of many products. The spoilage that results is frequently due to organisms not normally encountered because they are overgrown by radiation-sensitive *Pseudomonads*.

PACKAGING

Radiation does not impart some miraculous self-sterilizing property to the food. Therefore, it is necessary to provide a suitable container for the sterile product to prevent recontamination. Flexible films of nylon, mylar, polystyrene, and polyethylene have been used. The problems of water loss, of induced odor and flavor from the irradiated plastic, and protection from light and oxidation are under consideration and may be solved by combination of plastics with thin metal films. Rigid metal cans have many advantages but are much less transparent to electrons. The effect of irradiation and of irradiation and storage on various can enamels has been studied.

CHEMICAL CHANGES

A major deterrent to the use of radiation preservation has been the chemical changes accompanying treatment. Although these chemical changes occur in a small fraction of 1 per cent of the bonds present, they are detectable as odor, flavor, or texture changes which are frequently different from those produced by cooking. Some of the products are measured in parts per million.

Unfortunately, knowledge of radiation chemistry is not sufficient to cope with a problem anywhere near as complex as the irradiation of foods. Each food has to be treated as a separate experimental problem, and the experimental problems are rather formidable because of the variety and range of concentration of the products. Classical methods of extraction, distillation, and colorimetry, as well as newer methods of gas chromatography and mass spectrometry, have

been used to separate and identify a wide variety of products from irradiated foods.

Research in this field is hampered by a lack of basic knowledge in desirable odors and flavors. How many of the compounds found in irradiated foods are necessary for the proper flavor of charcoal-broiled steak or roast beef?

There seems little doubt that there are no new esoteric (or erotic) compounds produced by irradiation, but rather a different composition of common compounds. Carbonyl compounds are produced in carbohydrates, fats, and proteins by irradiation. Peroxides are produced only in the presence of air; however, post-irradiation exposure to air may result in carbonyls or peroxides, presumably due to trapped radicals or other long-lived active sites. Although a correlation between odor and water-soluble carbonyls was not found, there is little doubt that part of the irradiation odor is due to carbonyls formed by oxidative deamination of amino acids. Ammonia, methyl amine, ethyl amine, and three other unidentified amines (volatile bases) have been isolated from irradiated beef. Sulfides, disulfides, and mercaptans have been identified in irradiated foods and must contribute to the irradiation odor. Mercaptan content has been found to correlate with odor in irradiated beef.

In addition to odor and flavor changes there are changes in color and texture. Fresh meat when irradiated develops a semi-cooked appearance due to two pigments, one predominantly red and one green, produced by oxidation of the myoglobin. In the absence of oxygen gross changes in the color of fresh meat do not occur even at double the sterilization dose. In the presence of oxygen, however, both the heme and the globin moieties are altered. An unidentified pink compound is formed which appears to be neither oxymyoglobin nor peroxymetmyoglobin. Irradiation of pre-cooked meats may result in an unusual red color below the surface. This color is due to the conversion of the normal brown denatured globin hemochrome pigment into a red pigment characterized as denatured globin hemochrome.

Structure and texture changes have been found in many products. These are frequently due to degradation of carbohydrates. Starch, dextran, cellulose, and pectin have been found to degrade upon irradiation in aqueous solution or suspension. The changes are frequently accompanied by changes in pH and color due to the production of carboxyl groups and reductones. The changes in mono- and di-saccharides are of little significance at sterilization doses.

METHODS FOR PREVENTION OF UNDESIRABLE CHANGES

"Radiation pasteurization" has been previously mentioned as a means of reducing the dose severalfold. However, the treated product is not sterile and therefore has limited storage life. Means of preventing or masking the undesirable chemical changes produced by sterilization doses have been sought. Elimination of oxygen during irradiation, the addition of antioxidants such as ascorbic acid, irradiation at frozen temperatures, the addition of spices, and tomato paste have all been found to reduce the irradiation odor to some extent. Tomato paste has been reported to be very effective. It is presumed that these inhibitors act by one of the following mechanisms: (1) Free radical scavengers such as ascorbic acid; (2) Elimination of the indirect effect by freezing the solvent; (3) Formation of mercaptals and mercaptols by interaction of mercaptans and carbonyls; (4) Interaction of mercaptans with amines; (5) Masking of an undesirable odor with a more desirable one.

ENZYME INHIBITION

It was soon discovered that irradiation-sterilized foods contain active enzymes. Tyrosine crystals have been found on the surface of irradiated sterile meat after extended storage. Sterilization doses destroy 50-90 per cent of the cathepsins and catylase systems in foods. Other enzymes and enzyme systems show a wide range of radiation sensitivity. Therefore it has been found necessary to inactivate or inhibit enzymes by other means. Mild heat treatment has been one of the most effective. Heating to 158-165°F for

one minute has been reported to inactivate all cathepsins. Chemical inhibitors of enzymes are under investigation and may be combined with irradiation.

NUTRITIONAL EVALUATION

Chemical, microbiological, as well as animal feedings, tests have been used to determine the nutritional value of irradiated foods. They have been examined for the destruction of both macro and micro nutrients. The amino acid destruction by sterilization doses has been found to be about the same extent as for heat sterilization, although the destruction pattern is different.

Some vitamin destruction occurs during irradiation. Vitamins D, K, riboflavin, niacin, folic acid, and B₁₂ are relatively stable, while Vitamins A, E, C, and thiamine are quite liable. The stability of dilute solutions of pure vitamins has been found to bear little or no relation to the stability of the same vitamins in tissues or foods. Many vitamins that are sensitive in pure dilute solutions have been found relatively stable in foods.

WHOLESOMENESS

It is obvious that all this effort would be to no avail if the product were unwholesome. Therefore extensive feeding tests have been under way on mice, rats, guinea pigs, dogs, monkeys, chickens, and human volunteers. There is no evidence to indicate that irradiated foods are less safe than foods from other processes. All searches for radiation-produced carcinogenic agents have been unsuccessful.

SUMMARY AND CONCLUSIONS

While there are many problems yet to be solved, there is no indication that they are insurmountable. The development of larger and more economical sources will make this method of food preservation increasingly attractive. It will have application in special areas depending on the food distribution, processing, and consuming practices of each country or economic area. With a rapidly expanding population and a critical food shortage in many areas the world must examine every possibility of more efficient utilization.

Traumatic Implications of Psychiatric Disability Discharge from the Armed Services*

By

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I

BY AN overwhelming majority, the American selectee's personal reaction to compulsory military service in World War II was to resent it as an outrageous curtailment of his civil liberties, endurable only out of deference to social pressure and in the interest of national self-preservation. Typically, for the well-adjusted citizen soldier, this vigorous reaction was expressed not by open rebellion, but mainly by a grim "G. I. Joe" humor which had a folklore all its own. The popular comic character, "The Sad Sack," was an arch exponent of this pattern: the common soldier became masochistically the butt of his own feelings about the perniciousness of the military regimen. A more positive cushioning device was camaraderie under fire, which, as in all wars, elevated the spirit of human interdependence to an exalted level. But through it all, the day of discharge was awaited in exuberant impatience; it was to be the end of patriotic servitude, the return to decent living after an interruption that had been all but intolerable.

The soldier who by comparison was less irked by the service, who saw in it more of a positive experience for himself and who took a more sanguine pride in his duties, did not quite belong in this robust group. He was sneeringly said to have "found a home in the Army." If his dutifulness became conspicuous, it was lampooned in scurrilous terminology. It was he and his kind who were among the inspirations for "The Sad Sack."

* The opinions expressed in this paper are those of the author and do not necessarily reflect the policies of any branch of the armed forces.

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The more he managed to get himself accepted and approved by the authorities, the more he was ridiculed by his peers, the citizen soldiers whose uniforms never quite became part of them. Yet this rejection was usually not in dead earnest; for the most part, it remained on the level of a family feud—or even just a fun-poking issue cooked up for the sake of diversifying roles, keeping things lively, and indirectly deriding authority by scapegoating its more devoted underlings.

This was the broader picture—the pattern that by its sheer predominance is often taken as being entirely representative. If one were to wax psychodynamic in his reminiscences of those days, he might explain that the "good-soldier" group was probably made up of deviant-normal individuals who, while not seriously maladjusted, were somehow lacking in a healthy, spontaneous rebelliousness against arbitrary authority.

But the total picture was not quite so simple. As we have long since learned in working with military misfits, there were men within the good-soldier group whose adjustment was not even marginally normal. Many of these were predisposed by unresolved dependency needs to adapt on a level that fell short of maturity, at the same time maintaining a stopgap equilibrium by their conspicuous allegiance to the service and all it stood for. If this precarious pattern succeeded, they held their own until they were routinely discharged. Or, as was often the case, they chose to make the military service their career; and by the same token, it was in many instances these men who had volunteered for service to begin with, instead of "sweating out the draft" and hoping that somehow it might not catch up with them.

Within this maladjusted good-soldier group, other men were still less fortunate. It is these who, now as veterans in psycho-

therapy, are the subject of my observations. During their time as service men the intensity of their emotional problems and the unpropitiousness of their local situations, combining in relative proportions that varied from case to case, precluded any lasting personal equilibrium. For these men, matters went from bad to worse until, far from "finding a home" in the service, they were excommunicated as psychiatric misfits. They had bargained for absolute acceptance by offering an absolute loyalty; but in a world of relativity and expediency the transaction had inevitably broken down, and there was no consolation prize in sight. Psychiatric disability compensation payments from the Veterans Administration were at best a paltry solace. Sometimes these monthly checks were sorely resented; in other cases they aroused distressing ambivalence—signifying, as they did, both a kindness and a stigma—a stigma continually reinforced by public prejudice against the mentally ill.

During the past few years, I have observed this pattern of problems in four of the World-War-II veterans I have seen in psychotherapy in a Veterans Administration Mental Hygiene Clinic. The aftermath of being discharged was, for all of them, essentially the same. In the travails of their psychotherapy, each in his own way struggled with one and the same plight—whether by words, by fantasy, or by deeply troubled action. It was a plight of being totally unable to cut their losses. Their strivings expressed a consuming wish to be reinstated in military service, with all wrongs forgiven and all losses made good. Their last-ditch hope was to master an intolerable rejection by turning back the clock.

II

Case 1: D.O. O.'s presenting symptoms were anxiety, depression, inferiority feelings, thoughts of being looked at by others, and destructive impulses. His pattern of living was one of phobic withdrawal from human contact, broken by occasional efforts to relate to others which ended typically in further withdrawal without satisfying inter-

change. He was a 31-year-old unemployed single man, living in the home of his married sister. More than any of the other veterans, he was able to remember and to express to me the humiliation of being discharged for psychiatric disability. His words from our first interview, which I tape-recorded, sound the keynote of these veterans' common predicament:

"Then, of course, overseas I did start blacking out. Ah, told the doctor I blacked out; couldn't recall nothing. So he looked at me like I was faking or something; said, 'I can't see anything organically wrong with you.' So he sent me down to see a psychiatrist. Looked at me, and the next thing I knew they had me on a closed ward; and then I was really gone off my rocker. And ah—of course I was shipped home. But it seemed somehow I could never take that: that fact of being discharged from the Army as 'neurotic' or whatever the hell I was listed as. I recall years afterward I used to still dream I was back in the Army; that upset me a great deal when I got discharged. Because somehow I could always put up the big bluff; always knew how to do that—put up a big bluff. And hide my feelings, keep 'em all inside—until sometime I feel like I'm going to bust."

Case 2: L.F. F. was a 31-year-old paranoid schizophrenic, unmarried and unemployed, living with his parents. His life was severely disorganized—a marginal existence beset by estrangement from the world, homosexual ideas of reference, and abortive efforts to find himself with others. Of these four veterans, he was by far the most seriously disturbed. Among the psychological tests which he took before starting psychotherapy in 1953 was one in which he was asked to make up and write out 20 sentences, each containing the word "because." In nine of his sentences, he gave vivid expression to his desperate need for acceptance and his feelings of having been misunderstood and unfairly rejected. In two of these nine (Nos. 11 and 19), he referred explicitly to his sense of injury at having been disposed of by the military as a psychiatric case:

"2. To be a success is not enough because love is to the soul as water is to the plant.

3. If I marry someone who really loves me, it will be a paramount issue in my life, because I am very lonely. . . .

6. I cannot understand many things, because people don't understand me. . . .

9. I am not sure if I know what love really is, because I've been tricked so much by strangers.

10. I know if I could get a decent job I'd be OK, because I'd be happy.

11. I am not glad I am out of the service, because to get a medical discharge is an awful blow to me. . . .

13. To be given a decent break would be my cure, as my neurosis is aggravated by viciousness. . . .

17. I get aggravated because the doctors tell me I imagine it and medicine cures it. . . .

19. I feel an injustice at times because psychiatrists *generalize too much.*"

In his delusional fantasy life, F. was obsessed with an image of himself as a soldier-hero. Time and again he went to see the blood-and-thunder war movie, "Battle Cry." He brought in to me several imaginative writings having a common latent theme: that he would gladly risk death if only he could enjoy again the feeling of belonging and esteem that he associated with his time in the service during World War II. One of his writings, a "poem" arranged as prose, ended as follows:

"This was where we'd make our stand, and hold Old Glory high. This was where some would live and where some would die. For all the march down that road and through the swamp was to reach this place. Where if I fall upon the ground God would show his face and help the man beside me to hold this vital place."

F.'s traumatic reaction to psychiatric rejection actually had its beginning in civilian life, between his first and second periods of service. By the time he had re-entered the service in 1950, he was ready to force a showdown on the issue of his personal worthiness or unworthiness.

After finishing his first period of service with two Battle Stars in 1946, he had returned to his pre-war job as a messenger with the Navy Department. It was in 1947 that he was dismissed from this job for inefficiency. The following year he attempted suicide by taking an overdose of sleeping pills, and later sought private psychiatric treatment. (Four years later, when his illness had become acute and he was facing his second military discharge, he told an Army evaluation board: "Actually my sickness started early in 1947 when I received an inefficiency discharge.")

Having lost his Navy job and made his suicidal gesture of remorse, F. tried to salvage his self-esteem by taking academic courses in the hope of qualifying himself more adequately for further work or training. These strivings culminated unhappily with the disapproval of his application for medical training. The goal of becoming a doctor still obsessed him when I saw him; it was, in the light of his IQ of 100 in 1953, perhaps an unrealistically high aspiration, but one that was emotionally indispensable to F. as retribution for the earlier reverses to which he had not been able to reconcile himself.

There followed months of floundering, drifting, and morbid rumination. Finally, in March 1951, F. volunteered for further military service—turning back as though to a last resort to where, by his own wartime experience, his need for the esteem of others was least likely to be denied. But by this time he was unable to put his best foot forward. His overtures were gestures of misery rather than of confidence. Starting in July 1951, the record lists several admissions to an Army hospital in Germany. Here F. presented "a multitude of hypochondriacal somatic complaints with loose paranoid trends. . . . He referred in a haughty fashion to his IQ which he says is 139 and to his 'inherited ability for art, medicine, and literature.'" Sexuality and guilt feelings became involved in his self-concern; he demanded that his prostate gland be removed and made himself a nuisance with the nurses. The possibility of

psychiatric rejection developed at this stage, but discharge was delayed by a tolerant viewpoint on the part of the psychiatrists that was unusual for a soldier so seriously disturbed as F. In August 1951 his board decided to give him another chance:

"While we feel that he is an eccentric personality who functions and has functioned far below his intellectual capabilities, nevertheless it appears that he is acceptable for further retention in the military service and could give satisfactory performance of duty. His is a schizoid type of personality but he is not schizophrenic. To quote the patient, he 'blew my top the other day when they left me waiting outside Col. Hutchinson's office while they took other patients and then finally told me to go back to the ward.' He has had a little too much of the old wartime soldier, not enough appreciated and respected by the new young soldiers, psychology which led to a building up of pressure of resentments so that he had a temper outburst towards the ward master, and with emotionally hampered judgment brought out the essentially irrelevant fact that he had previously been under psychiatric treatment."

But F. was no longer able to settle for tolerance and understanding. By now he had raised his stakes, so that only a special dispensation, a mark of exceptional distinction, would have made up the difference for him. His schizoid behavior grew more malignant. By February 1952 he was looked upon as permanently disabled and not qualified for further military service. He was transferred from the hospital in Germany to an American hospital, and discharged on a Certificate of Disability in July 1952 with the diagnosis: "Schizophrenic reaction, paranoid type, . . . manifested by feelings of persecution, inappropriate affect, obsessions about receiving attention, and considerable fantasizing. . . . Incapacitation: Marked."

Returning to civilian life, F. took up vocational rehabilitation training under the auspices of the Veterans Administration. He made several tries at business schools and art schools; but he was too disturbed to hold his own and was shifted from one training

institution to another. It was during this period that he came to our clinic for psychotherapy.

Case 3: G.B. B., like F., was a paranoid schizophrenic. Though less acutely disorganized than F., he too had a marginal adjustment, without steady work and without a wife. His dependency strivings were intense: he skillfully attached himself to numerous people around the city who were willing to provide him with old clothes, with food and lodging on extended credit, and with the rudiments of comradeship.

His father had remarried after the death of B.'s mother and was living elsewhere. The father was a grievously disturbed, insecure, hostile man who had been a World War I Warrant Officer. B. had enlisted in the Army before the war while still in his teens, not only in search of security but in an effort to handle his deeply conflicted feelings about loyalty to his father. Apparently his conflicts erupted under the stimulus of World War II, with its rapid mobilization of hostilities and security measures. B. had risen to the rank of Master Sergeant and was holding an exacting administrative position. He was a spit-and-polish soldier who prided himself on knowing many Army Regulations by heart.

But his loyalty was an extravagant, top-heavy, rigid superstructure, overwrought in the hope of neutralizing his mounting inner feelings of hostility, inferiority, and guilt. His personal apprehensions became confounded with his suspicions of others and of their intentions toward him. Subversion as a security problem came to be an obsession with him. Ferreting out some instances of real subversion on the part of others, B. fabricated and lived out a preposterously intricate plot with himself as a figurehead, involving suspicion and counter-suspicion, sabotage and counter-sabotage. The separate elements of reality and fantasy became so interwoven that they were never disentangled, either in his legal and psychiatric hearings in the Army or in his psychotherapy with me. As the plot thickened and his own Army security status and mental

condition grew more equivocal, he found a vindictive pleasure in being the subject of special official concern. Ignoring the handwriting on the wall, he taunted the authorities over their problems in evaluating him, and by so doing incurred further attention and further disfavor. Nevertheless, his bravado was only a cover for the pain of losing a position of esteem.

After being discharged for psychiatric disability, B. developed a massive grievance. At times it was directed against the Army; at other times, against his father, the Veterans Administration, employers who refused to hire or retain him, or me. The roots of his resentment were manifold, but one of its dominant themes was painfully clear: his troubles were the fault of those who had misunderstood and mishandled him; his psychiatric diagnosis was an unbearable stigma; and he would not rest until it had been officially countermanded and stricken from the record. In one less guarded moment, he told me that only when he could re-enlist in the Army would he ever feel decisively exonerated.

While in psychotherapy, B. fought a running battle with the Veterans Administration over his psychiatric diagnosis and his disability compensation. When his compensation was reduced, he crusaded to have it restored to the maximum amount. For him, it was not inconsistent to demand maximum compensation with a clean bill of mental health: the compensation was not for his own handicap, but for the damage of having been discharged and stigmatized. So long as he was earmarked as a paranoid schizophrenic, he could not hope to get a decent job; therefore, the government was responsible for his economic security, and would continue to owe him retribution even after its psychiatric error had been rectified. But the personal quality of his suffering was such that he could rarely face it on his own terms. Even after formulating it as a medical-administrative issue, he defended himself further against it by clothing his protests in elaborate technical concepts and legalistic language. A personal hurt was first made

over into procedural problem and then disguised as a contest over semantics.

Case 4: *T.M.* M.'s life was like a series of bad dreams which gave expression to feelings he could neither tolerate nor communicate. As I knew him, he was an immature, conscientious, good-natured man, asthenic, uneasy in crowds, and seclusive. Often he seemed to be in a daze without losing his nonchalance. Perplexity would overtake him only when his mood swings carried him toward depression. He was not psychotic, and, being less severely sick than F. and B., was married and able to work. He held a gloomy view of himself, and could not see how anybody could like a person like him. When he heard people laughing, he felt that they must be laughing at him. He was subject to a variety of transitory conversion symptoms, including dizziness, fainting, partial deafness, pain, numbness, and recurrent fugue states. He had many frightening combat dreams, reminiscent of the four major engagements in which he had fought at Salerno, Sicily, and Normandy. His emotional problems centered around destructive impulses, which he would often prankishly expose to others but more often direct against himself—taking life-and-death risks with his car, his knife, or one of the old rifles that he collected as a hobby. Small amounts of alcohol affected him drastically. He had frequent spells of tremulous excitement which took him to the brink of self-destruction or anti-social aggression.

After enlisting in the Navy, M. had had episodes of erratic behavior which jeopardized the safety of his fellow sailors and got him involved in disciplinary actions. He had always taken great pride in his combat service, and the disciplinary penalties were a blow to him, compounded by his subsequent return to the States on rotation in 1944. He had become intensely identified with the Navy, finding security in being considered, like every fighting man, a person to be valued for his skills.

While he was on shore leave in England on his way back to this country, his feelings of resentment and hurt pride found a scape-

goat on which they could vent themselves. According to the record, there was "trouble in a local tavern in which he became destructive during an alcoholic rage which was precipitated by an alleged sarcastic remark made by an English bartender about the American forces." M. was arrested by the Shore Patrol, forbidden to board his ship, and placed under psychiatric observation. To him, this action was a consummate denial of his need to be accepted as a Navy man. "When he found he could not return to his ship, patient alleges that he attempted to commit suicide by lying across railroad tracks. Upon finding that the tracks were not being used after a period of 30 minutes, he got up and walked away greatly disillusioned that he had not been run over by a train." A summary court martial followed.

During the next few weeks, psychiatric considerations took precedence over those of discipline. After landing in the U. S., M. grew increasingly preoccupied with his feelings of no longer being wanted in the fighting Navy, where his destructive impulses had a legitimate outlet. While drinking again in a tavern, he was picked up by the Shore Patrol in the act of trying to scratch his eyes out and stab himself. The record continues: "He states after returning to the U. S. he has felt and still feels his 'number is up.' Therefore he has constantly asked to be placed in the suicide demolition squad but was unable to become attached to any such activity. . . . This patient . . . appears restless, somewhat seclusive. . . . He admits frequent suicidal thoughts but insists that he wants to remain in the Navy. His behavior has revealed poor judgment and immature, impulsive reactions. . . . Diagnosis . . . constitutional psychopathic state, schizoid personality. . . . Present condition: unfit for service. Probable future duration: permanent. Recommendation: that he be discharged from the U. S. Naval Service. . . . Patient offers a statement in rebuttal to survey. . . ."

"I, T.M., U. S. Navy, in this letter of rebuttal refuse the discharge as I feel confident that I will be of use to the Navy in

further operations as I have had experience in this line.

"I have had no memory of trying to commit suicide which led to my present admission to this hospital and have no reason for doing such. I am also experienced in my branch of work in which I have had a recommendation put into my records, and it would be a mistake to take the discharge because I happened to be a victim of circumstance. (Signed) T.M., U. S. N."

". . . Discharged this date from the U. S. Naval Service. . . ."

In connection with his disability compensation, M.'s diagnosis was later changed to that of psychoneurosis, mixed type.

His unremitting wish to be back in naval combat service was lived out in civilian life with remarkable ingenuity. Four separate phases of his life, if they could somehow have been amalgamated into one, would have very nearly amounted to a literal fulfillment of this wish. In the first place, he established himself as a civilian employee of the Navy Department. Secondly, having been a Gunner's Mate, he collected old rifles, restored them lovingly to first-rate firing condition, became a hunter, and developed surpassing skill as a marksman. Thirdly, he joined a special-interest group of men who, when they met, would wear authentic Civil War uniforms, observe the military routines appropriate to that war, and hold marksmanship contests using rifles of that period. And lastly, he made numerous dependent gestures toward the Veterans Administration, among which would be counted his psychotherapy.

Seven months after I started seeing him, M. went into a fugue state in the hallways of the clinic building. He tried to re-enact what must have been the most praiseworthy performance of his naval service—his leading role in the escape of nine American prisoners of war in Tunis. By the time my colleagues and I had established partial contact with him, he had assembled several trash cans which represented his fellow prisoners.

After this, psychotherapy brought into

focus his manifold efforts to ingratiate himself with others. We began to investigate why it should be necessary for him to bargain for approval at such an unprofitably high rate of exchange. The same intense need for special acceptance and love began to dominate his gestures toward me. The nearest he could come to expressing his dependency needs and his associated feelings of unworthiness was to tell me glumly, "I just feel like a dummy sitting here."

It was in this context, during the 16th month of psychotherapy, that the second of his fugue states in the clinic developed and he acted out his hostility and suicidal despair over not getting all that he needed from me. At a time when he had no appointment with me, he reported to our receptionist and brusquely demanded that I see him, claiming that he did have an appointment at that time. When the receptionist corrected him, he left in a huff and returned later with one of his wrists lacerated and dripping blood. In a lucid moment, he told us that while walking on the street he had seen "his face" (presumably my own) in a window and had shattered it with his fist, afterwards deliberately cutting his wrist with a sliver of glass. He was taken to a local psychiatric hospital, but after several days was signed out against medical advice by his wife and mother.

He never returned to psychotherapy. When I telephoned him four weeks after his fugue state and discussed his absence and the meaning of his recent troubles, he replied vindictively: "I ain't coming down there no more, that's all. They had me in there as a suicide, something or other—all that stuff. Said I cut my wrist!" Some weeks later, when a Veterans Administration psychiatric examiner interviewed him to re-evaluate his disability for compensation purposes, he told him he had been afraid to return to me for psychotherapy.

III

If we bear in mind that these men's dismissals from service were neither routine nor fortuitous, but in every case were offi-

cial disqualifications necessitated by their own troubled behavior, their experience takes on the quality of the living out of an inexorable psychological destiny. In their relationships with me, this destiny, as it were, once again implacably asserted itself: each of them, like M., discontinued psychotherapy before it was completed. Their breaks with me were precipitated by emotional upheavals too drastic to be constructively contained within the limits of our work. Common to these upheavals was the theme of not personally belonging as objects of my beneficent concern. Indeed, their actions during these crises seemed designed to provoke me into rejecting them.

It was clear from what they had made known to me about themselves that their discharges, as well as their departures from psychotherapy, were re-enactments of earlier misfortunes with their parents. The problem at issue was the disappointing disruption of a hopefully beneficent and protective relationship. Their re-enactment of this theme, conditioned as it was by their failure to master the original childhood disappointment, is understandable as an instance of what Freud has called the "compulsion to repeat." In defining the origins of this compulsion, Freud refers to this same childhood experience of disappointment:

"The early efflorescence of infantile sexual life is doomed to come to an end because its wishes are incompatible with reality and with the inadequate stage of development which the child has reached. That efflorescence perishes in the most distressing circumstances and to the accompaniment of the most painful feelings. Loss of love and failure leave behind them a permanent injury to self-assurance in the form of a narcissistic scar, which in my opinion . . . contributes more than anything to the 'sense of inferiority' which is so common in neurotics. . . . The tie of affection, which binds the child as a rule to the parent of the opposite sex, succumbs to disappointment. . . . The lessening amount of affection he receives, the increasing demands of education, hard

words and an occasional punishment—these show him at last the full extent to which he has been scorned. These are a few typical and constantly recurring instances of the ways in which the love characteristic of the age of childhood is brought to an end.

"Patients repeat all of these unwanted situations and painful emotions in the transference and revive them with the greatest ingenuity. They seek to bring about the interruption of treatment while it is still incomplete; they contrive once more to feel themselves scorned, to oblige the physician to speak severely to them and to treat them coldly. . . ." (1, pp. 22, 23.)

In this connection, the veterans' urgent wishes to re-enter military service can be understood psychodynamically only as secondary or derived phenomena. They are significant as a way of referring desperately to the self-engendered trauma of having been discharged—a trauma which, born of the repetition-compulsion, was likewise not irreducible, but was derived from their difficulties in outgrowing their original dependent relationships with their parents. Thus, when one behaves so as to lose for himself the esteem of those to whom he looks for security, and then insists on adapting mainly by trying to reinstate himself in the same esteemed position, he may actually be struggling with an older problem of never having reconciled himself to the loss of his absolute childhood claim to his parents' love.

IV

Having so defined the problem in terms of individual psychology, let us shift our perspective and consider the same developments as an unresolved issue in social pathology. What are the implications of these personal tragedies with reference to the process of group membership and its breakdown? Is it conceivable that the armed services could have found any way of handling these men that would have mitigated their distress and averted the collapse of the personal role on which they had so lavishly staked their security?

It is now common knowledge that when a combat pilot suffers a traumatic emotional reaction following the crash of his plane, the most hopeful treatment is that which gets him back in flight as soon as possible. The same principle of prompt return to duty after brief therapy has proven effective in the treatment of combat neuroses in ground troops. A striking instance of the converse of this principle has recently come to light in the work of Manfred Pflanz and his colleagues. In their study on "Socio-Psychological Aspects of Peptic Ulcer,"² they found that the onset or recurrence of ulcer coincided consistently with the patient's exclusion from a community or group—regardless of whether the exclusion was self-initiated or involuntary. This pattern, observed in 43 out of 45 cases studied, involved the familiar theme of frustrated dependency needs. Secure group membership, while it lasted, was seen as a decisive factor in the individual's resistance to stress. When the membership was lost, symptoms returned even in the face of a bland diet.

In the case of our four veterans, we have seen that discharge from the armed services was likewise a loss experience so overwhelming that they could not mobilize a healthy adaptive reaction. Superficially, their exclusion was involuntary; psychodynamically, it was unconsciously voluntary, precipitated by the social repercussions of their own inner conflicts. If the disapproval of the armed services at this critical juncture carried such inordinate weight for them, how would they have responded to reassurance and continued acceptance? Would it have carried equal weight, syntonic instead of disruptive? Could it have given them the same restorative solace as the loving hand of a parent on the head of a distraught child? This oversimplification reduces the problem to its minimum essentials: the possibility of providing a "corrective emotional experience" in the interest of conserving the most vital of all our natural resources, the human person as a healthy social unit.

In 1955, the Veterans Administration

published the findings of a panoramic inquiry into the psychological vicissitudes of the neurotic ex-service man of World War II. The monograph was titled, "A Follow-up Study of War Neuroses."⁸ The subjects were about 1,000 former Army and Navy enlisted men who during 1944, while still in the service, had been hospitalized as psychoneurotics. Of this number, 592 veterans were interviewed systematically and intensively by psychiatrists. Subsequently, the investigators sifted their data through 271 tables in which many variables such as the following were carefully weighed one against another: family history, pre-service adjustment, precipitating factors, treatment and disposition in service, Veterans Administration compensation status, and present adjustment. In the investigators' conclusions (some of which were definitive, some speculative), several points are made which bear so directly on our present problem that further conjectures of my own would be superfluous.

In the first place, the study offers confirmation of the traumatic effect of psychiatric discharge on the veteran himself:

"Apart from the loss of manpower that this (disability discharge procedure) entailed, it is possible that the fact of a medical discharge carries with it certain liabilities to both the man and the country. A man who is discharged on psychiatric grounds appears twice as apt to be sick on follow-up than an identical man who was returned to duty and eventually discharged for the convenience of the government. Also, if a man were returned to duty, the chances are 2.5 times as great that he will not be given compensation." (3, p. 330).

One could argue that these statistics have nothing to do with any hypothetical traumatic reactions in the individuals concerned; that they simply reflect the appropriate medical and administrative procedures serving to segregate seriously disturbed cases from those less seriously disturbed; that the illness did not follow from the psychiatric rejection, but preceded and necessitated it.

And this was surely the conscious social frame of reference for these procedures at the time of their accomplishment. But the investigators' retrospective appraisal does not sustain such an interpretation:

"It is possible (and according to many psychiatrists even probable, particularly if the experience with combat cases is remembered) that the mere act of taking such a man off duty status and placing him in a hospital or other treatment facility in itself decreases to a large degree his chance of being effective again in the service." (3, p. 331.)

This opinion was explicitly validated by two of the four veterans in the present study. During psychotherapy with me, they talked of their psychiatric hospitalizations, describing their feelings of overwhelming discomfort, personal insult, and disorganization at finding themselves on locked wards teeming with other distraught men. A treatment that had been intended as curative was, in their own experience, an ordeal in a "snake pit." In all probability, their traumatic reaction was under way by this time, and psychiatric discharge was merely its denouement.

It is often contended by practical-minded people that the armed services cannot be expected to turn aside from their military mission to coddle disturbed service men with so-called psychiatric rehabilitation *de luxe*. The monograph suggests that military psychiatry is actually more open to criticism on such a point than is civilian psychiatry:

"Some of the more severe cases will require hospitalization, but it was a common observation that, because of the absence of any other kind of facility, most of the psychoneurotics who were hospitalized in the service would not have been hospitalized for the same difficulty in civil life." (3, p. 331.)

The question again arises: Is there an alternative way of handling these disturbed men—not only the neurotics but likewise the prepsychotics and psychotics—that might have salvaged them for the social matrix from which they were becoming disarticu-

lated? Again referring to the monograph, we find that a start has been made toward an operational answer:

"The results of this study would suggest that at least half of those in the clinical sample who were medically discharged could have been used if proper assignments had been found for them. . . .

"In one experimental project in retraining psychoneurotics after breakdown in the last war, many were rehabilitated for assignments in the service branches in the Zone of Interior and to a large extent any failures which resulted stemmed from inadequacies in the assignment process. It may not be possible to devise a system for using increasing numbers of limited-service personnel within the framework of the Armed Forces. A system of universal mobilization in time of emergency might then provide the answer by permitting interchange between military and nonmilitary assignments. Certainly the disability discharge should not be used as an expedient to solve the problem of no assignment." (3, pp. 329, 330.)

When F. wrote in his test that "psychiatrists generalize too much" (italics his), he was perhaps unaware that he could find support for his thinking in the forefront of contemporary psychiatry—to wit:

"The authors believe that (the concept of) predisposition has been overgeneralized, and that we would do well to think more in terms of vulnerability to specific forms of stress and to the factors that modify that vulnerability. Possibly the psychiatrists used in World War II (induction) screening would have contributed more to the war effort if more of their talents had been devoted to ensuring better utilization of men in the Armed Forces and to efforts at prevention of psychiatric breakdown. . . .

"Notably lacking is information on what is expected of the men who serve and on how to evaluate their performance in the Armed Forces." (3, pp. 331, 321.)

If these men suffered unnecessarily, then, it was from undue emphasis on the individ-

ual and his psychopathology, and from neglect of the dual potential of social forces—potential for sustenance or for destruction. The investigators' own statement speaks for itself:

"Important sustaining forces not present in civilian life are found in military service, most important of which is close identification with a group. Psychiatric screening in World War II was based primarily on individual psychology and little consideration was given to social or group psychology. In some instances entry into service removes specific interpersonal stresses and even in time of war the service is a haven for some; the phenomenon of men breaking down when faced with the prospect of a return to civilian life may be an extreme manifestation of this." (3, p. 326.)

When these social forces are allotted their natural weight, one no longer has to choose between the "hard-boiled" and the "chicken-hearted" approaches to psychiatric treatment. The distinction breaks down, and the welfare of the individual is seen to be at one with the welfare of his group. There remains only the challenge of finding the techniques to translate our understanding into a therapeutic reality.

V

To summarize: Observations of World War-II veterans during psychotherapy indicate that some of them were emotionally traumatized by their experiences of being discharged from the armed services for psychiatric disability. Their ways of getting themselves rejected by the services are understandable as compulsive re-enactments of the loss of parental love. But the individual's problem of military discharge can also be viewed socially, in terms of the collapse of his membership in a group to which he had formed an intensely dependent and loyal attachment. With such a shift of emphasis, it appears that this kind of breakdown could often have been averted by a different handling of the relevant social-psychological

forces in response to the individual's troubled gestures.

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²Pflanz, Manfred, Elsa Rosenstein, and Thure von Uexküll: *Socio-Psychological Aspects of Peptic Ulcer*. *Journal of Psychosomatic Research*, 1: 68, 1956.

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NEW YORK CHAPTER MEETING

The Spring meeting of the New York Chapter of the Association of Military Surgeons will be held at the Officers Club, Governors Island, N.Y., Thursday, May 28, 1959.

Rear Admiral Chester C. Wood, U. S. Navy, Commandant, Third Naval District, will introduce Lieutenant Commander John H. Ebersole, Medical Corps, U. S. Navy, who will speak on "Medical Problems of the Nuclear Submarine."

Cocktails at 6:00 P.M.

Dinner at 7:00 P.M.

Speech at 8:00 P.M.

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Overview of Rehabilitation Nursing: Is It New Or Is It Old?*

By

NURSE DIRECTOR ROSALIE I. PETERSON
U. S. Public Health Service†

IS REHABILITATION something new for the nursing profession? I suspect if we were to poll the opinions of this audience the vast majority of you would say it is not new. The fact that the question was posed by the program planning committee made me wonder, nevertheless, whether there is a need for us to stop and reflect. Let us together consider rehabilitation in the light of our current philosophy of nursing.

To set the stage for our discussion let us review what we mean by vocational rehabilitation. The most frequently quoted definition is: "The restoration of the individual to the fullest physical, mental, social, vocational and economic usefulness of which he is capable." It would seem evident from this definition that it would be necessary for medical and allied disciplines to work closely together to plan and execute a program to achieve this goal—namely, the restoration of the individual to his maximum usefulness and independence.

If nursing is to function as one of the planning constituents, its representatives must understand the scope of the problem in the community wherein they reside or the community which they serve—the incidence, prevalence, mortality, costs to society, etc.; the causes of accidents or diseases which result in crippling conditions; plans for the prevention of those diseases, and plans for the physical and psychological care essential for the maximum restoration of the patient.

As nurses we should know that the government is very aware of the problems and needs of our handicapped citizens. As far back as 1921, there has been federal support for vocational rehabilitation and our figures show that 523 patients were vocationally rehabilitated in that year. In 1923 Public Law 113 was passed which accelerated the program throughout the country. In one decade (1944-1954) 528,000 disabled men and women were rehabilitated to satisfying and productive lives. In 1954 the Vocational Rehabilitation Act of 1923 was strengthened through important amendments.

To restore an individual to an independent productive life is expensive but it is far more expensive to society to fail in rehabilitating a citizen. Compilation of statistics by the U. S. Office of Vocational Rehabilitation show that the 528,000 citizens who were rehabilitated between 1944-1954, paid into the Federal Treasury through Federal Income Tax, more money than had been expended on their total rehabilitation. As citizens we profited by our investment and concomitantly brought independent, satisfying and productive lives to 528,000 of our citizens.

Another cause for deep concern relative to the need for a dynamic vocational rehabilitation program is the fact that the number of handicapped individuals will increase in proportion to the growth of the population and the number of older citizens. Confronted with a problem which will inevitably increase, it is imperative that every effort be made to control the underlying causes responsible for disability. As members of the planning team, nurses must be well informed regarding the total aspects of the rehabilitation problem—causes, prevention, early detection, as well as the specific nursing care—if they are to make a professional contribution to the overall attempt to meet the problem.

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Let us consider these aspects of the rehabilitation problem, one by one.

Causes. The most recent National Health Survey lists the causes of disabling conditions which have existed for a twelve-month period in the following order: cardiovascular diseases, nervous and mental diseases, rheumatism and allied diseases, permanent accidents, and finally a list of other diseases in declining ratios.

Prevention. Suppose we apply the principles of prevention and early detection to some of these diseases and to accidents. For certain of the cardiovascular diseases the primary cause or causes are known to be preventable. In others, only the complications can be prevented in light of our current knowledge. It is known that streptococcal infections of the respiratory tract frequently precede the development of rheumatic fever. Hence when the nurse takes a culture of a throat which looks suspicious, and is instrumental in securing prompt medical treatment for the patient, she has taken the first and most important step in the prevention of rheumatic heart disease. The nurse can also be instrumental in seeing that persons susceptible to rheumatic fever are taught the importance of adhering to recommended drug prophylaxis as well as guarding against upper respiratory infections.

There is some indication that the occurrence of virus diseases especially in the first trimester of pregnancy may contribute to the development of congenital heart disease. It has therefore been recommended by some authorities that all young girls be exposed to German measles in order to promote early development of the disease.

Detection. As always, it is difficult to separate the areas of prevention and detection since there is an inevitable overlap. The nursing role has many facets over and above the bedside care of the patient—the making of pertinent observations regarding symptoms, motivating the patient to report to his physician, and helping follow both immediate and long term medical advice. There are, however, specific situations in which the nurse has a unique opportunity to participate

in early case finding. For example, nurses coming in contact with young children should look for a diminished or absent femoral pulse beat—a significant sign in the diagnosis of coarctation of the aorta. Again, nurses working with patients in the middle aged and over group should be alert to the loss of stamina in any part of the body such as facial muscles, arms, legs etc. since this loss may be the first sign of cerebro-vascular accident.

Accidents are also a major cause of crippling conditions and many accidents can be prevented. An alert nurse can observe hazardous conditions in the home, in industry, and in schools, and recommend the eradication of those conducive to accidents. Highway accidents can be reduced if public opinion can be aroused so that pressure will be applied for the construction of highways with accident prevention devices. We also need to create in people of all ages a pride in driving safely and courteously.

Accidents and the previously mentioned diseases are not the only ones in which rehabilitative aspects of nursing care are important. One could enumerate almost indefinitely, but among those that come readily to mind are cancer, diabetes, tuberculosis, poliomyelitis and multiple sclerosis. One of our greatest national needs at the present time is an increased number of beds for the chronically ill in hospitals and nursing homes staffed with nurses and auxiliary personnel prepared to assist with rehabilitation.

Besides participating in a program of prevention and early detection, the nurse, as a member of a rehabilitation planning committee must assume a citizenship role in helping to inform members of the community as to the need for legislative control of hazards, financial support for research and the instruction of individuals and groups regarding the implementation of safe living.

Now let us focus our attention on the nursing care of the patient and see how that becomes an important integrated part of a rehabilitation program. Rehabilitation begins immediately upon hospitalization or diagnosis, whichever is earlier. It is the nursing

team, which, to a large extent, must prevent deformity or further disability by positioning the patient correctly. Failure will delay healing, cause increased pain, and allow contractures of muscles and fixation of joints. The nurse must prevent or heal decubitus ulcers, teach the patient the necessity for frequent change of position and help him to make such changes. In addition she must help the patient reeducate his muscles in order to restore function. Some patients who have sustained severe accidents or who have long term illnesses may require prolonged bed rest which often results in loss of muscle tone. With severe disability there may also be concomitant loss of desire to live or to get better, and this problem too must be faced by the nurse.

There is fatigue and weakness which makes the patient shrink from exercise. However, it is only through correct exercise that strength increases, coordination and agility return, and the patient is able to perform the motions essential to self help. The nurse must understand the patient's frustrations and fears and create in him a desire to achieve the activities of daily living or self care—feeding himself, getting out of bed, dressing and walking. She must be sure he fully understands why he is required to do things for himself; must be able to share with him his joy in achieving even infinitesimal success.

I am sure many of you are saying to yourselves that these are the fundamentals of good nursing care. That is true, but how conscientious are we in carrying out these basic concepts of nursing? Are we too busy to give good nursing care? Are we so engrossed with new nursing responsibilities that the real fundamentals of understanding and competent nursing care are glossed over or forgotten? A prolapsed foot means the tendons in the heel are shortened so that the patient who has been rehabilitated to the extent of being able to stand on his feet is still unable to walk. How often has this not happened to accident patients or arthritic patients? I can think of patients I have seen or of whom I have heard—the older lady who had not

had sand bags supporting her legs to prevent outward rotation (even though this had been ordered) and could not use the braces which would have helped her to walk; the fourteen year old boy injured through an accident, who was allowed to lie on one side (due to decubitus ulcers) and to flex his legs because of abdominal pain—who could never walk again because of contraction of the leg and hip muscles. These are true situations and more could be cited.

Morrissey has listed four basic objectives of rehabilitation nursing:

1. To acquire knowledge of the content of nursing care in rehabilitation.
2. To develop an ability to teach the principles of rehabilitation nursing care.
3. To extend the practice of rehabilitation nursing into every area of nursing care.
4. To educate the public to accept the concept of rehabilitation.

I am sure that if Miss Morrissey were here and could discuss each of these objectives we would see she has included the areas of prevention and early detection in the list of nursing responsibilities. She has placed primary stress on *teaching* and I feel she has implied the necessity for including follow-up supervisory visits to patients in homes, industry and schools. Both the patients and families will need understanding and guidance to continue the rehabilitation which has been started in the institution because it is difficult for patients to transfer learning from a hospital situation to one in the home or at work. The key figure in a successful transfer to the home situation is a well informed public health nurse who understands the specific therapy to be accorded each individual patient. Basic to the successful performance of public health nurses in any rehabilitation program for post-hospitalized patients is the smooth functioning of a well delineated referral system. But why is it so difficult to develop a referral system for professional nurse follow-up? Would it help if doctors, nurses, and therapists who have all worked cooperatively in the hospital situation to restore a handicapped patient were to spend a day now and then visiting in the home with nurses from

the Visiting Nurses Association or public health agency? It seems inexcusable to spend effort, money, and time in restoring a person and then have all of that work negated due to failure to provide planned follow-up care at home.

Another problem which disturbs me and one which I would like to share with you is the failure to utilize nurses in the over-all planning of a rehabilitation program. Surely nurses who implement treatment in the daily care of patients and probably know the patient better than any other discipline, make observations which are vital in the over-all planning of the rehabilitation program. Yet they are seldom part of the team which helps to evaluate patient progress and plans for the patient's continued treatment. They are seldom delegated the responsibility for executing the referral system so that the patient will receive adequate follow-up home care. Why is this true? If a total evaluation of a patient's progress is to be made, surely the discipline which carries out the treatment begun in physical therapy, who through astute observations realizes the degree of fatigue, depression, and pain which may determine the necessity for modification of treatment has a valuable contribution to make in the over-all planning of the patient's program. If we as nurses secure greater understanding of the rehabilitation program, in terms of prevention, early detection, hospital and home care, would doctors recognize that we have knowledge, skill and understanding which would strengthen the over-all rehabilitation program? Can we excel in observations, critical evaluations, and purposeful listening so that those responsible for de-

veloping an over-all rehabilitation program will seek the cogent contributions of well informed nurses?

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Discussion

By

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THE Overview of Rehabilitation: Is It New Or Is It Old has been presented by Miss Rosalie Peterson in the light of our current philosophy of nursing. Be-

fore discussing the subject, let us first consider the current events of the day which may affect rehabilitation and the philosophy of nursing in the light of the future. The

year 1958 is a milestone in history. The space age arrived with repeated demonstrations of space flight. Ten years ago the word "space flight" were more or less considered "dirty words." When small boys talked about space men and space ships, they were admonished by their parents not to be so imaginative—and, to spend their money for something else besides space ship comic books. Today parents are explaining the principles and prospects of space flight to their sons. Although space flight is here, space travel is not. It will follow as soon as engineers can build a suitable vehicle and scientists can solve the problems of extra-terrestrial survival. The new frontier of space has, therefore, created additional problems for the medical services. While we, the nurses discuss rehabilitation: "Is It New Or Is It Old" the Military Surgeons are discussing "Dynamic Medicine and Rehabilitation in the Space Age" and the Medical Specialists are discussing "Preparing For The Physiological and Psychological Needs Of The Space Age." In order that our discussion of the Overview of Rehabilitation may include the future, as well as the past and present, I would like to devote a few minutes to the history, progress and problems of Space Medicine.

Space Medicine has been a growing part of aviation medicine since 1947. In 1949 the Department of Space Medicine was founded by Major General Harry G. Armstrong, at that time Commandant of the USAF School of Aviation Medicine, Randolph Air Force Base, Texas, and a pioneer in Aviation Medicine. This year it is being expanded from a department to a division in the School of Aviation Medicine. There is one outstanding differentiation between Aviation Medicine and Space Medicine. In Aviation Medicine problems of flight tended to be solved as they occur. If space travel is to be successful, the biological problems must be completely solved before the space ship is designed and/or the man takes off into space.

For instance when aircraft reached an altitude of 15,000 feet, anoxia was a problem and the solution was the installation of oxy-

gen systems in aircraft. When aircraft reached 38,000 feet anoxia in spite of 100% breathing oxygen was a problem, and the solution was pressure breathing and pressure cabins. At 70,000 feet a limit of economical pressurization was reached and the sealed cabin will be the solution. At the speed of sound which we must travel in space, loss of control, buffeting, disintegration of aircraft and habilitation of the crew to survive in a new environment becomes the problem. Therefore, our research scientists are working fast and hard to solve these problems.

In order to present to you the rehabilitation factors of space medicine, I recently visited the Division of Space Medicine at the School of Aviation Medicine, Randolph Air Force Base, Texas. Colonel Paul A. Campbell, USAF (MC) Chief of the Division, and author of numerous articles concerning this new field of exploration, spent the day explaining the principles of space travel and discussing the habilitation and rehabilitation aspects of the space age with me. I was accorded the privilege of observing the Space Cabin Simulator in which Airman Donald Farrell completed seven (7) days existence during February of this year. I also interviewed Airman Farrell. He related a detailed account of his experience and the after effects. The Space Cabin for travel must be a completely closed or sealed regenerative system in which everything abroad must be utilized over and over and over again. Carbon dioxide must be re-converted back to oxygen repeatedly. Metabolic water excreted from the skin and kidney must be re-established and re-used repeatedly. Food products if possible should be grown within the cabin or miniaturized. This is necessary due to the fact that it takes 1 to 2000 pounds of fuel and structure to lift each pound of payload into space—payload being each pound of body weight and supply weight needed abroad to survive.

The Space Cabin Simulator at Randolph Air Force Base, is a compact closed unit. It is equipped with a pilot modified to serve also as an adult size "potty chair." The anterior chamber was equipped with a tele-

vision camera, a water collector and condenser, and a system for chemical treatment of the air breathed. Between the suspended equipment and the floor there was twelve inches of horizontal space available, wherein the occupant could spread an air mattress for sleep. A supply of standard food in small portions and an electric heating cup provided sustenance. During the experiment Airman Farrell was completely isolated from people. He was observed by television and through small "peep hole slits" blacked out by hoods. He was unaware of visual observance, but was advised of outside activity by light flashes on a panel board. For diversion he listened to music which was tape recorded. Airman Farrell survived the seven (7) day experiment very well and reported the following facts. Fresh salad ingredients lasted four (4) days before decomposition. Hard boiled eggs were edible for five (5) days. Water was rationed. Water salvaged by condensation required purification and was best utilized for cooking. Although polyethylene bags were used for each defecation of stool and sealed immediately, there was considerable irritation from noxious odors. The greatest problem to deal with was loneliness. Airman Farrell stated that there was nothing wrong with him that a good bath, food and rest could not cure. As a matter of personal interest it may interest you to know that Airman Farrell has been accepted by the University of Boston for a course in Aeronautical Engineering which he began this September. His university education is being provided by a scholarship fund presented to him by Arthur Godfrey.

The experience of Airman Farrell in the Space Cabin Simulator is an example of the conditions to which man must habituate himself if he is to survive in space. The principal human factors to which he must adjust are as follows:

Factor 1—Weightlessness: To-date we do not know the exact effect of weightlessness on the individual. The human body as it exists in the terrestrial or earthly atmosphere is accustomed to coordination of movement governed by three physiological systems.

Briefly these are, (1) the visual apparatus, (2) the semicircular canal system of the inner ear and (3) the kinesthetic system. Of these the visual apparatus or eyes is the only one not affected by gravity. From the small amount of research available at this time, it is believed that through habilitation training, vision and visual clues may compensate for the loss of function of the other two. Aviation pilots who fly planes under instrument conditions have already shown that a great deal can be done when the eyes can follow electrical and mechanical cues of an instrument panel.

Factor 2—Providing Food and Water in a Regenerative System or in Miniaturized Feeding: Constant research is being conducted in this phase. Perhaps the most publicized project is the development of an algae which produces oxygen yet can be utilized for food. Several universities are studying algae. A recent radio news cast stated that an algae has been developed which produces 1,000 times more oxygen than the original plant. At the Aero Medical Laboratory, Wright Patterson Air Force Base, Ohio, Miss Beatrice Finkelstein who is nutritionist in the Physiology Branch, Nutrition Section, has done considerable research in miniaturizing food. She is currently presenting a paper to the Medical Specialist Branch of the Military Surgeons entitled "Nutrition Research For Man In Space."

Factor 3: Another human factor is the problem of radiation and the changes it would produce in the physiology of the body. Therefore the vehicle must be constructed to prevent, if possible, human contact with hitherto unsuspected x-radiations. This factor is also undergoing extensive research.

Factor 4: If the propellant of the vehicle is nuclear, then the space man will also need to be protected from the forms of radiation resulting from the power of propulsion. The propellant, likewise is a matter of concern to the health of the ground crews who maintain the vehicle. The psychological effect of space flight is also a major concern.

Factor 5: The time period of the flights will intensify the fatigue element of flying.

Instead of hours and days the time element may be in years. The hostile extraterrestrial environment will result in anxiety, living in a completely closed regenerative system and the long period of low oxygen tension, cannot help but create emotional strain. The space pilot must be prepared for the strain before flight, and rehabilitated after flight.

At the present and for several more years to come, space medicine will be primarily concerned with teaching and preparing a man to live in an artificial quasi-terrestrial environment, namely habilitation to space. When space travel becomes a reality, rehabilitation will be an added medical consideration. It will consist of two components: (1) Medical support at the Rocket Site and (2) treatment of the space man.

Medical Support at the Rocket Site is quite well understood and is presently being practiced. The resultant effects of working with high explosives, and highly corrosive materials is presently appreciated and quite well controlled. However, man's reaction to this return to an earthly atmosphere is comparatively unknown. In any event it is altogether possible that he will be treated for physiological changes, fatigue, anxiety, and readjustment to gravity control of movement. However, the factors involved in Rehabilitation In The Space Age will not change the four basic objectives of rehabilitation nursing as presented by Miss Peterson. The primary concern of the nurse will continue to be "to aid the physician with his work." Let us consider each of the four objectives from a futuristic aspect.

1. *Acquire Knowledge of the Content of Nursing Care.* The content of nursing for the man existing in a quasi-terrestrial environment will concern the entire person and the regenerative processes wherein he will exist. He cannot be considered from a purely medical, surgical or psychiatric aspect. His care must include a broad spectrum of all the health factors with emphasis upon *prevention of disease and injury*, rather than upon *restoration after disease or injury*.

2. *Develop an Ability to Teach the Principles of Rehabilitation Nursing Care.* The

ability to teach cannot be overemphasized. Every superior nurse is in circumspect a good teacher. As we progress into the Space Age there is a growing need to teach people how to care for and protect their own health and safety. Not only must the space traveler be taught. Those who provide for him at home at a base facility must understand the nutritional, physical, and emotional requirements of his mission.

3. *To Extend the Practice of Rehabilitation Nursing into Every Area of Nursing Care.* The rocket site itself, as a rule, will be in an isolated area and will involve a relatively small number of people. The medical support unit will be small. The medical support rendered must be comprehensive in nature and not specialized or confined to a particular part or particular function of the physiology of the body.

4. *To Educate the Public to Accept the Concept of Rehabilitation.* Herein, lies a major portion of our duty to space medicine. This year we have witnessed a growing public interest in the advent of space flight and space travel. We have learned that other planets are not populated with "bogeymen" and we are preparing to visit them. To educate the public in the medical concepts of health has always been a major contribution of nurses, whether it be in bedside nursing, school nursing, home nursing, or in our very own manner of living in a community. To do so we must grow with the age. Progress in medicine is costly and slow. Much of our contribution to rehabilitation in this age will be through individual effort to study and learn, personal interest in the problem at hand, and an ability to communicate knowledge to the personnel entrusted to our care.

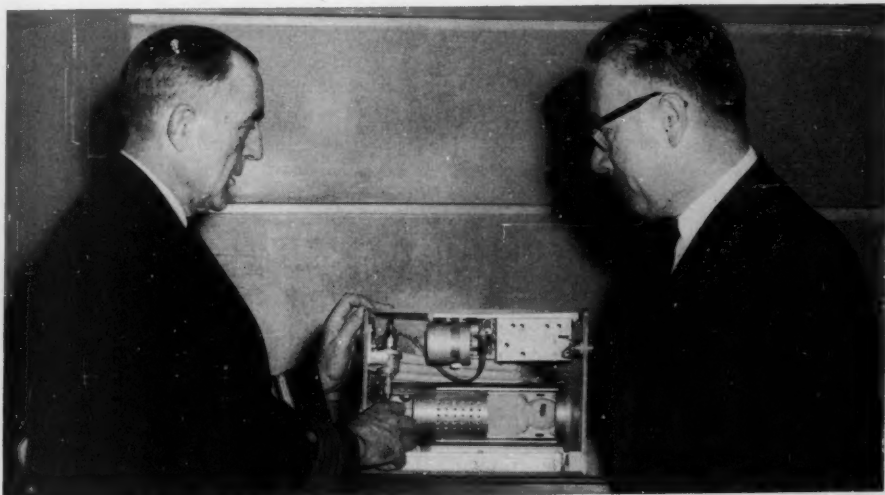
Cooperation, coordination, and communication between the medical sciences cannot be overemphasized in the over-all planning of any rehabilitation program. Rehabilitation nursing as a specialty may be new, but the need for rehabilitation of the sick and injured is as old as time itself. Every human being living who has been subjected to physical ailments, or emotional stress and strain is in need of rehabilitation. Is it then not

reasonable to deduct, that it is the responsibility of each individual nurse to broaden her knowledge and concept of rehabilitation in order that she may contribute to the total health and/or recovery of a person whether he be in the hospital, on duty, or in the home? Can she afford to confine her activities to strictly nursing subjects, per se? Must she not support and cooperate with the dietetic, the physical therapeutic, the pharmaceutical and the laboratory fields of science.

The past history of nurses indicate that "as we excel, so shall we be recognized." So be it with rehabilitation. In closing let us remember that whether we deal with rehabilitation of the sick or injured, habilitation of the individual for a new environment, or exploration of new frontiers in nursing, that the imagination of today is quite often the reality of tomorrow. We need only to have *faith* in our motives to excel and contribute. Ambition cannot be disabled.



BIO-PAC CAPSULE



Official Navy Photo

CAPT. NORMAN L. BARR, MC, USN (left), Director, Astronautical Division, Bureau of Medicine and Surgery, Washington, D.C., and DR. DIETRICK BEISCHER, Head of the Biophysical Laboratory, School of Aviation Medicine, Pensacola, Fla.

These individuals developed the Bio-Pac Capsule which was used in the flight of the monkey, "Old Reliable," into outer space on December 13, 1958. Such problems as oxygen supply, removal of carbon dioxide and water, and temperature control had to be considered. The monkey carrying capsule reached an altitude of 300 miles.

Army Health Nursing: The Program at Fort Jackson

By

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AND

MAJOR RUTH B. KELLY, Nurse Corps, U. S. Army†

MATERNAL and child health is emphasized in the Army Health Nursing program at Fort Jackson, South Carolina—a program through which the concept of “family health service” has been extended to many military families.

Although some overlapping occurs, as is true whenever family service is the aim, the program presently covers the following broad fields: Maternal and Infant Health, Child Health, Adult Health, and Communicable Disease Control. In all of these fields, health education is the primary aim—teaching and counseling being given in family health whether the problems be physical, emotional, or social. The family is helped to secure needed aid and treatment at clinics or at appropriate agencies when indicated.

In the field of Army Health Nursing—a public health nursing service offered to the military personnel and their dependents—all problems relating to physical, mental, social, and emotional health are considered. Army Health Nursing, like Official Agency Public Health Nursing, is directed toward helping members of the military family help themselves to develop and maintain positive attitudes toward health—which, as now commonly defined and accepted, is not merely the absence of disease, but “a state of complete physical, mental, and social wellbeing.”

The first Army regulation for Army Health Nurses was published in June 1950. By that time, however, a few enterprising nurses had already started Army Health Nursing programs on various posts in the United States. The first program was started

in the First U. S. Army Area in the latter part of the 1940's, with the aim toward giving the soldier and his dependents services similar to those available in civilian communities and to instigate preventive health measures, thereby reducing hospitalizations on the post.

Gradually additional posts started Army Health Nursing programs. Each post had its own needs and its own problems. It was up to each Army Health Nurse to discover those needs and problems and to build her program accordingly, always, of course, with the approval of her Post Surgeon under whose supervision she functioned. The program grew and grew and now many posts in the United States and overseas utilize successfully the Army Health Nursing Service.

The Army Health Nursing program at Fort Jackson is, itself, hardly more than in its infancy, having been started in 1951. Three military nurses have since functioned in the position of Army Health Nurse. Each has added to the growth of the program by discovering and trying to meet new needs. These nurses have found the greatest needs and problems in the field of maternal and child health and to this field they have devoted the largest portion of their time.

Fort Jackson, an Army Infantry Training Center, is one of the larger military installations in the Southeast and is located about five miles from the heart of Columbia, the capital of South Carolina. Approximately 14,500 dependents of military personnel live in and around Fort Jackson. Limited quarters are provided on-post for the families of enlisted men and officers; however, the majority of military families live off-post throughout the city of Columbia and surrounding rural areas. A post kindergarten

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for four- and five-year-old children, with an average attendance of 50, is a part of Fort Jackson and under the administration of the Post Central Fund (an agency of the Post Headquarters). A day nursery has also been established where approximately 1,500 babies and young children are cared for per month by a qualified staff of employees on an hourly basis at a nominal fee. Since there are no elementary or high schools on the post, the children of military personnel attend public and parochial schools in the vicinity of their homes. Although civilian schools provide school health services to our military dependent children, the post medical facilities provide, of course, most of the preventive and corrective services to them. To give an idea of the magnitude of services rendered, during 1956 pediatric visits numbered 35,576 and 30,589 adult visits were made to the Out-Patient Clinic; 42,230 immunizations were done; 17,078 visits were made to the OB-GYN Clinic; and 1,075 deliveries were performed at the U. S. Army Hospital at Fort Jackson.

MATERNAL AND INFANT HEALTH

The Maternal and Infant Health Program is divided into two main parts: prenatal education and postpartum and newborn education. Prenatal classes offer an excellent opportunity for teaching. Prenatal orientation classes are held three mornings a week at the Obstetrical Clinic. At these sessions the Army Health Nurse: (1) acquaints the patients with the physical environment of the OB service, (2) gives general information concerning the operation of the OB Clinic—explanation of clinic hours, how to register, where and how to report unusual symptoms, (3) gives a brief talk on the important points about hygiene, diet for good nutrition and weight control, and prescribed medications and, (4) discusses the "Preparation for Parenthood Classes" and explains briefly the content of the class sessions. At these class sessions the Army Health Nurse has the opportunity to meet and instruct all the new prenatal patients, both primiparas and multiparas. "Prepara-

tion for Parenthood Classes," each series consisting of five weekly class sessions, are held about seven times a year. Primiparas are especially encouraged to attend the classes.

The first three classes are taught by the Chief of the OB Service. The reproductive system, the growth and development of the baby, hygiene and diet, labor, and childbirth are all discussed. The fourth class is taught by a psychologist or mental health social worker, and the emotional health of the child and his parents is considered. Since the husbands are particularly encouraged to attend this fourth class, it is held in the evening. The fifth class is taught by the pediatrician, who discusses the newborn baby and his care. Visual aids in the form of movies, charts, and pamphlets are used. The "Birth Atlas" and anatomical charts showing the size of the growing uterus in relation to the other organs are used at the first class. The moving pictures shown are: "Prenatal Care" at the second class, "Labor and Childbirth" and "A Normal Birth" at the third class, the mental hygiene film, "A Preface To A Life," at the fourth class, and "Meal Time Can Be A Happy Time" at the last class. Sources of the visual aids utilized in connection with the conduct of the classes are listed in the Appendix. The primary purpose of this program is to dispel the fear of the unknown by teaching the mother what is happening to her as a prenatal patient, what to expect at the time of delivery, and how to care for herself and her baby.

The postpartum and newborn program is conducted as follows: The Army Health Nurse visits the obstetrical wards each morning and picks up the referrals. At least one home visit is made to every primipara to aid in problems of care and adjustment. The attitude of the family, the availability in the home of help and equipment for the baby, and the ability to follow instructions are all noted. General infant care, feedings, the bath, birth certificates, routine check-ups and immunizations are discussed. An explanation of the routine immunization program is given—Diphtheria-Pertussis-Tetanus

(DPT) immunizations starting usually at the baby's six-weeks check-up followed by smallpox vaccination at about four months of age and polio immunization at about six months of age. A check is made on the mother's condition, both mental and physical. Visits are made to multiparas and infants if special problems exist and they are referred for home follow-up. Visits are made to all premature babies' homes prior to discharge to evaluate the home situation and give advice about infant care; then follow-up supervision is done as indicated after the infant's discharge from the hospital. At each visit the Army Health Nurse looks for other problems that may exist and attempts to assist with them. She urges immunizations of other children if they have not been done.

CHILD HEALTH

The Child Health Program involves the following services: The pediatricians at the Out-Patient Clinic and on the Pediatric Ward refer cases to the Army Health Nurse for follow-up. New cases for follow-up are also found when the home is being visited in behalf of another family member. The post kindergarten and the post nursery are also sources of referrals. These two post facilities are visited weekly; sanitary inspections of the buildings are made and reported to the Preventive Medicine Service. All adults working with the children are required to have health cards and semiannual medical evaluations, including chest x-rays and stool examinations. Children found to have physical, social, or psychiatric problems are referred to proper sources of treatment.

Special problems that can not be handled at the post level are referred to civilian agencies. Fortunately state and local facilities are available for "exceptional children." Examples of these facilities are: (1) The Crippled Children's Society of South Carolina which sponsors a Cerebral Palsy Clinic, (2) The Crippled Children's Association of Columbia through which children may be sent to the Logan School for Handicapped Children, (3) Happy Time Center, a day

school for severely mentally retarded children, (4) the Columbia Junior League Speech and Hearing Clinic, (5) The State Department of the Blind, through which children get preschool home training and may attend the State School for the Deaf and Blind when ready for it and, (6) a civilian child psychologist.

Recently a "Child Health Conference" (Well Baby Clinic) was initiated at Fort Jackson. At this clinic, which is conducted by the pediatric staff of the Out-Patient Clinic one afternoon each week, about fifty infants are seen each session. The babies are started there at their six-weeks check-up and are seen monthly until their DPT immunization and smallpox vaccination have been completed. Mothers are instructed to bring babies back at six months of age to start polio immunizations. They are encouraged to bring in their children at two-month intervals for the remainder of the first year of life. Visits during the second year are recommended at four-month intervals, and from the completion of the second year until the child goes to school should be made every six to twelve months. Mothers are advised to make their own appointments whenever they need assistance with the care of their children or they feel their children require additional check-ups. A special effort is being made to examine all preschool children prior to their entering school. A system has been evolved in cooperation with the city, county, and parochial schools whereby these examinations are conducted during June, well after the official registration of the child which usually takes place in April or May. Through this arrangement, aims at "Preschool Roundup Clinics" and efforts of school authorities to gently acquaint the prospective school child with its new environment, are kept from conflicting with each other.

ADULT HEALTH

The Adult Health phase of the Army Health Nursing Program is again primarily educational. To a large extent this phase

overlaps the Maternal and Child Health part of the program. Special cases are referred to the Army Health Nurse by the doctors for follow-up treatment and guidance. Hospitalized diabetic patients are, at the request of the doctor, helped to understand the nature of their disease and how to care for themselves. The Diabetic Teaching Unit, consisting of film strips with explanatory recordings is borrowed from the South Carolina State Health Department Film Library as a teaching aid. Emotional and social problems when indicated are referred to the Mental Hygiene Consultation Clinic, the Red Cross, and the Army Emergency Relief. These services also refer cases to the Army Health Nurse, and conferences are held to coordinate the work of all those attempting to assist the patient and family.

A special Cancer Education Program was recently initiated as part of the Adult Health Education Program. As a beginning, two films of interest to women were obtained from the American Cancer Society: the well-known "Breast Self Examination" and "Time and The Women," the latter dealing with the early detection of cancer of the uterus through use of the Papanicolaou technique. The Chief of the Obstetrics Service introduced these films at special showings at one of the local post theaters and discussed the pictures and questions posed by the woman audience.

COMMUNICABLE DISEASE CONTROL

The Army Health Nurse assists in the Communicable Disease Control Program in many ways. As a part of this program, children's immunizations (DPT, smallpox and polio) are checked when home visits are made and they are recommended if not already done. Polio immunization of prenatal patients is also advised at each orientation class for new prenatal patients. Occasionally the Army Health Nurse is asked to give immunizations in the home when clinic visits are not advisable. When female dependents are found to have positive serologies, they are referred to the Army Health Nurse for

interview, patient follow-up and contact finding. Environmental investigations are made and epidemiological case histories are taken by the Army Health Nurse on patients hospitalized for certain infectious diseases, such as tuberculosis or infectious hepatitis. Family contacts living in the vicinity are visited and referred to the Out-Patient Clinic for prophylactic treatment or evaluation. Military contacts are followed directly by the Preventive Medicine Service. Civilian contacts outside the military jurisdiction are referred by the Preventive Medicine Service to their local health departments when indicated. In some instances suspected cases of communicable disease referred to the Army Health Nurse are investigated through home visits to evaluate the patient's condition and care for any diagnostic or treatment measures that may be necessary.

TEACHING AIDS

Educational methods used are group instruction, individual conferences, posters, moving pictures, pamphlets and other visual aids. Moving pictures and film strips are borrowed from the South Carolina Health Department Film Library; moving pictures are also obtained through the Post Film Library from the Third Army Film Library. Posters and pamphlets can be obtained from many sources free of charge. A large bulletin board has been placed in a conspicuous place in the Out-Patient Clinic, on which a display depicting some phase of health education is shown and changed monthly. Appropriate hand-outs are placed in boxes at the side of the bulletin board which fit the topic of the display. A diaper service laundry supplies copies of "Your New Baby" published by Parents' Magazine free of charge for distribution. The Parents' Magazine publication, "Baby Care Manual," is also obtained from the publisher free of charge and in sufficient numbers to be given to new mothers on the OB wards. Commercial enterprises, such as insurance companies and baby food and milk companies furnish excellent free pamphlets. The Appendix lists

some of the sources of such free material that are used. The Army Health Nurse actively participates in the In-Service Educational Program for nurses and orients each newly assigned nurse to the services offered by the Preventive Medicine Service in general and the Army Health Nursing Service in particular.

SUMMARY

Teamwork is the key to any successful service program! At Fort Jackson, the Army Health Nursing Program is an integral part of the overall Preventive Medicine function. The Army Health Nurse is both physically and functionally a part of the Preventive Medicine Service. She makes every effort to obtain full cooperation and the best working relations with all members of the medical staff, especially by demonstrating her capabilities in connection with the management of problem cases. At this post the medical staff as well as the population served consider her contribution to the health and welfare of the serviceman's family as highly essential. The Army Health Nurse must also maintain good working relations with local, city, and state agencies; such agencies are invaluable resources for help and referral of patients when needed facilities are not available in the military. No Army Health Nursing Service can function independently—it must be closely allied with all other medical and social facilities of the post as well as with appropriate agencies in the surrounding civilian community. Cooperation and coordination of effort, an open mind always receptive to new ideas, willingness to assume responsibility and to render service—and a liberal portion of enthusiasm—are the essential ingredients for a successful Army Health Nursing Program.

APPENDIX

- (1) *Birth Atlas* (17 charts in an easel-back binder), cost \$7.00, and anatomical charts *Relation of Growing Uterus to Other Organs* (set of 5 charts) cost \$3.00 per set—Maternity Center Association, 48 East 42nd Street, New York 28, N.Y.
- (2) *Baby Care Manual* published quarterly, and *Your New Baby* published monthly by Parents' Magazine. Free distribution through Readers Service Bureau, Parents' Magazine, 80 New Bridge Road, Bergenfield, N.J.
- (3) *How to Find the Health Educational Materials You're Looking For*—distributed through The National Publicity Council for Health and Welfare Services, 257 Fourth Avenue, New York 10, N.Y.
- (4) The following insurance companies are sources of suitable and free pamphlets and posters on many phases of health education:
 - a. Health and Welfare Division, Metropolitan Life Insurance Company, 1 Madison Avenue, New York 10, N.Y. (*What Foods do you Choose? A Formula for Child Safety*).
 - b. Bureau of Public Health, Medical Department, Equitable Life Assurance Society of the U. S., 393 7th Avenue, New York 1, N. Y. (*First Aid*).
 - c. John Hancock Mutual Life Insurance Company, 197 Clarendon Street, Boston, Mass. (*The Healthy School Child*).
- (5) The following companies supply good baby care pamphlets:
 - a. Research Division of Pet Milk Company, St. Louis, Mo. (*You and Your Baby* and *Your Baby's Formula*).
 - b. Carnation Company, Los Angeles 36, Calif. (*You and Your Contented Baby*).
 - c. Ross Laboratories, Columbus 16, Ohio. (This company makes "Similac" and distributes two popular booklets: *Breast-feeding Baby*, the *Natural, Practical, Economical Way* and *Your Baby, Your Doctor and You*).
- (6) *The ABC's of Prenatal Care—A Family Guide*, published by Heinz Baby Foods, Box 28-D-26, Pittsburgh 30, Pa.
- (7) *Bathing Baby*—Published by The Procter and Gamble Company, Cincinnati, Ohio.



Medicine in Israel

Personal Observations as a Patient in an Israeli Hospital

By

COLONEL LEO V. SCHNEIDER, MC, AUS, *Retired**

IN THE early spring of 1958 I received an invitation to visit Israel, a little country in the Middle East, which celebrated this year, the 10th anniversary of its turbulent existence. The invitation came from a representative of Weizmann Institute of Research, a well known scientific organization with whose work I was familiar through my previous occasional contacts.

My plans for a European trip were crystallized early in the year. I was going to attend, as U.S. delegate, the British Commonwealth Chest Conference in London during the first week of July 1958; visit several medical centers in Switzerland, Belgium and Italy and spend several weeks in Israel I was advised that spring and the early part of summer (May and June) is the best time to go to Israel; the weather is balmy with perpetual sunshine. Following a severe siege of tracheo-bronchitis during the 1957-1958 winter, I couldn't get rid of my persistent cough and chronic otitis media and a trip to a country where sunshine is a daily occurrence was exactly what I needed. So the trip to the warm sunny Mediterranean was anticipated with great pleasure.

I left Washington May 17. The trip by boat to Italy first and then by plane to Lydda, Israel was an enjoyable one. The weather was good during the trip and in Israel it was delightful. I was looking forward not only to regain my health during the following weeks but to learn a good deal about medical activities in Israel, including their intensive research work. Israel though a very small country in the medical field it exceeds the United States in the ratio of

the number of doctors per 1,000 population. During my first two weeks, I met a number of doctors representing different specialties in private practice as well as full-time members from several hospitals. They all impressed me as well trained physicians with solid backgrounds in medicine, people who take their profession very seriously. I was invited to visit hospitals. I was particularly interested in the Beilinson Hospital located in Petah Tikva, a suburb of the largest city in Israel—Tel-Aviv. I had heard a good deal about this hospital from different sources and was anxious to see it. This is a modern, well managed general hospital with approximately 450 beds. During my visit I was shown the hospital in every detail, spending there nearly the entire day. One could not miss seeing the marvelous teamwork between different departments, nor could one fail to observe the devotion with which every member of the staff carried out his work. Here was a group of dedicated people in spite of the fact that salaries paid to the doctors and nurses are very low in comparison to our standards in the United States.

I was delighted with my visit to Beilinson Hospital. Exactly one week later I was brought in an ambulance to this hospital as a patient and was admitted to the Medical Service #2, with the diagnosis of acute myocardial infarction. On June 10th in the evening, 3 hours after a fine, rather sumptuous dinner, while chatting with several doctors and their wives, I began to sweat profusely, about half an hour later severe vomiting followed. Some vague discomfort in the chest which at that moment I attributed to vomiting; the discomfort lasted for approximately 3-4 hours; the pulse became weak and slow, blood pressure dropped. A physician was

* Chief, Tuberculosis Control, Office of Assistant Chief Medical Director—Operations; Veterans Administration, Washington 25, D.C.

summoned; cardiac stimulant was given and I fell asleep. The following morning I was weak and very tired, but no pain or discomfort of any sort. However, a consultant cardiologist was called in, an old friend of mine, who suggested that a cardiogram be taken for his own comfort. The electrocardiogram indicated acute myocardial infarction. Hospitalization was recommended immediately. On June 12, noon, I was taken to Beilinson Hospital which I had visited only one week ago by invitation and had such enthusiastic impressions.

This previous visit to a hospital where I came now as a patient, really helped my morale. From what I had seen before, I was sure I was in a good hospital and would receive excellent, modern care. The future justified that assumption in full measure.

The diagnosis made outside was confirmed by another electrocardiogram taken as soon as I was admitted to the hospital. An exceedingly short history was taken so as not to disturb me—complete full history with a most complete and thorough physical examination was done later when the physician in charge felt that my improved condition would permit me to go through with it. I was put on dicumarol with daily prothrombin determinations; the blood was taken very skillfully by a physician. Peripheral blood tests were taken by medical technicians. Strict bed rest was prescribed. I was placed on a reducing diet. The diet for the first 4 days was limited entirely to fruits. Three times a day (breakfast, dinner and supper) I was served a plate of different fresh fruits and nothing else. My weight was 205 pounds when I was admitted and they felt that I should lose at least 20 pounds. After the four long days of the monotonous fruit diet, I was put on a low caloric, low fat, low salt, predominately protein diet, and remained on this diet, not exceeding 1600 calories per day during the entire stay in the hospital (a total of five weeks). I was constantly hungry but the desired goal was accomplished—I lost 21 pounds (9 kilos) during my 5 weeks of hospitalization. After four weeks of strict

bed regimen, I was given toilet privileges; no long walks were involved as the toilet was next door to my room; I was permitted to be bathed out of the bed by an attendant and to shave myself every other day using an electric razor.

Hospital Staff. The hospital is a 450 bed General (Medicine and Surgery) Hospital; it has three separate medical services. A surgical service, an ENT service (head and neck), extensive radiology and laboratory services and a fairly good medical library. Each medical service is under a highly qualified chief. Each Chief of Service has one or two assistant chiefs and several young physicians assigned to each medical service for training. These so-called trainees are physicians who already had some general training followed graduation and now specializing in different branches of medicine. They are sort of resident physicians in medicine. All doctors including the Chief and his assistants are well trained in medicine, they are full-time men, most of them are affiliated with the medical school, and as long as they are connected with the hospital they are not permitted to engage in private practice. As a special privilege one or two men on the entire staff of the hospital, outstanding in their fields, are permitted private consultant practice on a very limited scale—twice a week and for two or three hours only. Rounds are made daily by the entire staff under guidance and constant supervision of the chief of the service or his assistant.

A physician-patient cannot help being introspective in what is going on around him. I observed a good deal and the impressions that I carried away were definite and strong.

The medical standards in the hospital, where I was confined for 5 weeks, are very high. I venture to say that this could be very well extended to all hospitals in Israel by reason of comparison. They have excellent full-time doctors, specialists in their fields; the graduates of their own medical school, The Hebrew University, Hadassah Medical School in Jerusalem, are well trained physi-

cians, intelligent and devoted young men and women. Several of them in postgraduate training I met in the Beilinson Hospital. The nurses are well trained but there are not enough of them; student nurses are utilized to a considerable extent. There are a limited number of aids, mostly women, who assist the nurses on the wards.

Unfortunately my illness prevented me from learning more about the doctors in private practice; I regret that I couldn't contribute much time to look into research activities of the Weizmann Institute. From what I have learned in my previous contacts the research work covers many fields of activities, carried out on solid grounds by highly trained scientists. The Research Institute is responsible for a considerable number of publications that appear during the year in the *Israeli Medical Journal* as well as in

the European medical literature. Members of the scientific group of the Weizmann Institute actively participate in most of the National and International Conferences in their respective fields. Their contributions are of considerable interest to medical research groups anywhere in the world. All this is accomplished in spite of limited funds and facilities available. All the help that is being given from the outside world, principally the United States, is utilized very productively and wisely. I have learned this from the several reports of our own Ambassador, The Honorable E. B. Lawson, who is kept very busy in Israel, helping the country in every possible way and contributing a good deal toward most cordial relations between the United States and Israel which is felt everywhere by every American citizen visiting Israel.



WILLIAM L. KELLER MEMORIAL LECTURE

The Seventh Annual William L. Keller Memorial Lecture will be held at 8:00 P.M., May 21, 1959, at the Sternberg Auditorium, Walter Reed Army Medical Center, Washington, D.C.

"Lesions of the Parathyroid, Adrenals and Thymus Amenable to Surgery," will be the subject of the lecture which will be given by Doctor Frank Glenn of the New York Hospital-Cornell Medical Center.

Everyone is invited. This lecture will conclude the current series of The Surgeon General's Medical Meetings at the Sternberg Auditorium until next Fall.

EDITORIALS

Cold Injury*

WHEN a reader learns that there were 91,000 casualties from cold injury among the United States Army Forces in World War II, he is really impressed. He is more impressed when he learns that the British Army, even when operating under similar circumstances, had practically none. He wants to know the reason for the U.S. casualties, how they were treated, and, most important, if they could not have been prevented.

For a complete review of the factors involved in these injuries, we refer you to this excellent illustrated book entitled *Cold Injury, Ground Type*, prepared in The Historical Unit, Army Medical Service, under the direction of The Surgeon General of the Army.

As set forth in the preface, this volume has three purposes:

1. To record the history of cold injury, ground type, in World War II.
2. To summarize what has been learned of the nature of this form of trauma.
- ...
3. To formulate, from the materials of the past history of cold injury, the principles of a sound program for its prevention and control in future military operations in cold regions and in temperate regions during cold weather.

The Army experience with cold injury started in the Aleutians, at Attu, in May

1943. A battle which was expected to last a few days was delayed in starting on account of weather and extended over a period of three weeks in a cold, wet climate, in which it was impossible to move equipment, particularly of the heavy type. All the circumstances contributed to the many cold injuries which were incurred. Other factors largely responsible included the failure of commanders to heed the advice of those who had been in Alaska for a year and a half before Pearl Harbor, provision of improper footgear, and lack of instruction of the individual soldier in methods of preventing these injuries.

The lessons learned in the Aleutians were not learned well. Further failures had to come in the Mediterranean Theater, when troops were fighting in Italy. A year later, in France, there were more failures. So the number of casualties due to cold injuries continued to mount.

Will commanders ever learn that in taking calculated risks, however justified they may be, they must not overlook the health of their troops? We constantly hear about the importance of the individual man in the defense of his country. Yet why are certain factors pertaining to his welfare disregarded? Risks of course, must be taken, but not without proper preparation by commanders. Preparation includes the consultation of medical authorities. Past experience must not be disregarded. Cold injury is always a command responsibility, a responsibility that cannot be avoided. It must permeate down from higher levels of command through each echelon to each squad leader. All personnel must be thoroughly indoctrinated with the etiology of the condition and with the preventive measures which must be taken.

We will meet the same problems and en-

* Medical Department, United States Army. *Cold Injury, Ground Type*. By Colonel Tom F. Whayne, MC, USA (Ret.), and Michael E. DeBakey, M.D. Prepared under the direction of Major General S. B. Hays, The Surgeon General, United States Army. Editor in Chief, Colonel John Boyd Coates, Jr., MC. Associate Editor, Elizabeth M. McFetridge, M.A. 570 pages, illustrated. U. S. Government Printing Office, Washington, D.C. \$6.25.

counter the same conditions again and again as we continue to live in cold areas, whether under combat conditions or under the disaster conditions which may befall any civilian community.

There is no satisfactory treatment for cold injury. The answer to it is prevention.

This book is a valuable one. It should be studied and restudied by persons responsible for the welfare of people living in a cold environment.

Physical Examinations

THE value of periodic physical examinations is no longer questioned. While the practice has been well established in the military services and by many corporations in this country, there are many individuals who for reasons of their own do not concern themselves with regular physical examinations.

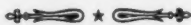
The life expectancy of people of the United State has increased so much since the turn of the century that many who would have died at a younger age are now getting into an old age bracket. This has been accomplished through control of the infectious diseases.

Older age brings its diseases, too. Numbered among these are the cardiac conditions, arteriosclerosis, and cancer, the latter of which we are especially made aware of this month.

Ferretting out these cancer cases in time to do something about the matter requires the combined efforts of the public, the medical and dental profession and their associated services. We are told that modern methods of treatment saved an estimated 150,000 persons last year. We are told that even more can be saved if there is earlier recognition of the signs of cancer. On the other hand we are told that new cases are diagnosed at the rate of 450,000 a year, and at all times some 700,000 persons are under treatment for cancer. It is stated that if the trend is unchecked some 40 million persons now living will develop cancer and 26 million of them will die of it. The public must be made more aware of the signs of cancer. Careful history taking prior to physical examinations may develop leads to its early recognition.

The person who presents himself for medical or dental treatment or for a physical examination should also receive a health lesson from his doctor. There are other diseases besides cancer that a person should be advised about. The doctor has a rare opportunity to sow a few words of wisdom. These may be for the individual under examination or, who knows, they may be spread along the way to reach others.

Complete physical examinations cannot be made rapidly so a time should be set aside when the patient and doctor are not in a hurry. Such examinations cost money but should pay good dividends.



The leading site of cancer today is the colon and rectum.

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Around the World

(Ser. III, No. 6)

By

CLAUDIUS F. MAYER, M.D.

FIJI apparently has solved its geriatric problems with its rejuvenating beverage. This is at least the impression that a recent report of a British surgeon commander leaves on us. He accompanied the group that witnessed the second British atomic experimental explosion which was staged on Malden Island, about 400 miles off Christmas Island, on 15 May 1957. The explosion was a high air-burst whose bang was even heard at Christmas Island, yet from the commander's impression it is clear that he was more impressed by the *Yaqona* (or *Kava*) ceremony which the Fijians arranged for the party after the big bang. *Yaqona* is the national beverage of Fiji. It is made from the roots of the tree of the same name. The substance has some medicinal virtues, being a genito-urinary antiseptic, but it has no alcoholic content. In Fiji, in the absence of geriatric wards, the elderly people consume *yaqona*, and hope for the best. It is perhaps an excellent treatment for the prostate.

Manus Island and Los Negros make up the main bulk of the *British Admiralty Islands* where the Royal Navy maintains a shore establishment at Tarangau. The two islands are situated 100 miles south of the Equator, and about 250 miles north of New Guinea. The two main islands form a land mass of about 80 miles in length; the mountains of the jungle-covered land rise up to 2,500 feet. Other settlements are at Lorengau and Lombrum, both on Manus Island. The weather is typically tropical, with 75°-95°F during the day, with some cooling in the evenings. The natives are Melanesians who are well fed and well housed by their own standards. They are taken care of by missionaries and patrol officers. The Royal Navy provides two medical officers who also take care of the air force and land troops stationed there.

The population of the *Admiralties* includes about 600 Europeans, and over 10,000 natives some of whom are servicemen and police. There are two small service hospitals (16 and 20 beds) for Europeans and for the native service people. The civilians have two larger hospitals at Lorengau. Most of the illnesses were due to minor injuries and upper respiratory troubles. The most common fungus infection of the skin is *tinea imbricata*, locally known as *girilli*. Filariasis is common, but yaws occurs only occasionally. Malaria preventive measures are well observed, and acute cases are rarely met with. The presently used drug for this purpose is chloroquin, 150 mg. of base, three times weekly. Leprosy was not reported.

People are worried in *Australia* that the rate of coronary disease is increasing among them. In 1953, arteriosclerotic heart disease, including coronary disease, was quoted as the cause of 4.9% of all deaths among Australian males. The picture becomes worse when only the deaths among professional, administrative, commercial and clerical people are considered. One fourth of such people died from the same cause in 1953. During the past decade, the disease gained by 80-90% in the age groups above 50 among the Australian men. The women are less affected by this increase in coronary disease. The great efforts which have been made to elucidate the nature of the responsible factors were not very successful. Diet is nowadays not much different from that of former days. Thus, the increase in coronary troubles cannot be ascribed to increased fat consumption. It has been also disproved that obesity and coronary disease are in close relation. The only difference in *Australian life* seems to be the increase in the *mechanization of life*, mechanization of industry, of transport and even of the home. This brought on a

relative increase in *inactivity*, even in the occupations. Now, greater inactivity will also provide an opportunity for smoking of more cigarettes, someone may say. But what about the increase in mental and emotional stresses? Evidently, the problem of coronary disease prevention is far from being solved.

The *medical organizations* which function in Israel include the following: (1) The Sick Fund ("Kupat Holim") of the Labor Federation which cares for about a million members; it has 887 polyclinics, 2,140 hospital beds, 1,400 dispensaries, and 580 pharmacies; (2) another sick fund for the National Labor Federation with 140,000 members; (3) sick funds for farmers; (4) sick fund for the Zionist movement; (5) the Hadassah medical organization, which is an American-Jewish contribution originated by Henrietta Szold, chiefly for preventive medicine, maternity and child welfare, and health education; (6) the Malben, also an American-Jewish contribution for the care of the aged, sick and handicapped immigrants to Israel, with several hospitals, homes, infirmaries, and workshops; (7) the Mogen Dovid Adom, the sole official agency for first aid in Israel; (8) the Anti-Tuberculosis League; (9) the OSE, which is an international Jewish organization, with headquarters in Paris, chiefly for child health; (10) a Foundation for Infantile Paralysis, organized in 1956.

Last Fall, the director of the Venereological Institute of Madras (India) undertook a motor trip from his town to a neighboring district some 120 miles away. He found that near every wayside village the motor ride slowed down to crawling so huge was the throng of animals and men clogging the highway. Comparing this trip with another one which he made along the same road 16 years ago he could not help commenting on the *tremendous upsurge of human and cattle population in India*, village after village, with most of the children and adolescent people standing and staring with a hungry look, and clothed with nothing but what they were born in. Indeed, "Hindus multiply with the irresponsibility of fish," as he put it. In India, an infant is born every two seconds.

Meanwhile, due to advances of medicine, the mortality rate is reduced. Formerly, such diseases as malaria and cholera took care of the excess of human life. Now, with the lowered standard of living, the increased costs of food, the increased unemployment, the Hindus must die from destitution and poverty. Is it kind, asked a cynic, to save people from dying of malaria so that they may die more slowly of hunger or of some chronic disease?

(By the way and in parentheses! Wholesale experiments with ovulation-repressing drugs as *contraceptives* have been carried out by a physician in Puerto Rico. Among the drugs which were tried out, the so-called 19-nor-steroids were of remarkable effects (these are known under such proprietary names as "norlutin," "enavid," and "nilevar"). The drug was given in 10-milligram daily doses for 20 days. There were no undesirable effects, only the pregnancy rate was reduced to practically nil. The drawback is the cost of the drug and the necessity that it has to be taken daily.)

But let us return to *India* where a gradual progress is made in solving the problem of *hygienic and sanitary milk supply*. The country is however at least 50-60 years behind the progress in the dairy sciences of the western civilized countries. At present, India is at the stage of arranging and organizing milk colonies near its large cities. Such is, for instance, the *Aarey Milk Colony at Bombay*, which also represents the first attempt at solving the knotty problem. Similar colonies are being organized in Calcutta and New Delhi. The greatest difficulty is the absence of an adequate number of pedigreed cattle. The project is in the hands of the Ministry of Agriculture which has to establish regional Milk Boards, and has to convince enough dairy-men to join a milk colony. Some help comes from the Government of New Zealand which tries to give advice in establishing a milkshed near Madras. A large farm will be established here, where all the 20,000 cattle which are at present scattered all over the town will be congregated.

Folidol is an insecticide which is also

manufactured in Bombay from where it is shipped to Cochin for the spraying of tea-gardens. This substance is a *deadly poison*, and during the last world war it was used by the Germans as a chemical warfare gas, according to the Hindus. It happened that the handling of this insecticide and its shipment in India was very carelessly done. The polyethylene container was marked as being harmless, so that it was not separated from shipments of food. Then, the container began to leak, the *Folidol* became mixed with food-stuffs which then caused a number of *fatalities in India*. There is no modern law in India which would make possible the control of the manufacture of poisonous substances, and the protection of the Hindus from the menace of chemical hazards.

The rural medical service is very much neglected in all parts of the world, but especially in India. A Hindu doctor, residing in Bombay, suggested that a *special cadre of rural medical officers* should be created, with equal status and pay as the Army medical personnel. An Army doctor is ready to serve anywhere because he knows that his wife and children will be properly cared for; he gets proper accommodations, a good salary, and other service benefits. If the same facilities, terms and conditions of service would be given to civilian rural doctors, they also will be willing to work in any part of the country. The *reorganization of the rural medical service in India* also would require many additional steps. Thus, e.g., transportation is very bad so that in Bombay State a large number of villages cannot be reached during the rainy seasons. There also should be diagnostic and emergency service centers established for groups of villages either by the State or on a cooperative basis.

Now, what does Nehru say to all this? He announced in May 1958 that "we cannot afford small editions of city hospitals all over the 500,000 villages of India. . . . The villages should come together and put up simple structures and the local bodies should help running these medical institutions. . . . The basic equipment needed by the rural doctor can be kept in a little hut." Or, in other

words, government help will not be forthcoming for the *medical relief of rural India*.

The *Mekong* is one of the great and mighty rivers of the world. It originates with two tongues in Tibet, flows through Western China, then, almost forming the geographical border between Burma and Thailand—which are west from it—and Laos, which is east from it. The river rushes through Cambodia, to end in a delta in Vietnam, south of Saigon, and to empty partly in the South China Sea, partly in the Gulf of Siam. Its total length is over 2,600 miles. The taming of this mighty river is essential for the *economy and public health of all South-East Asian* countries. Three huge dams are planned for construction during the next twenty years. The regulation of the river will make possible the erection of hydroelectric plants, creation of irrigational systems, and it will facilitate water transportation. Of course, this huge river basin is practically untouched by civilized hands, and no data are available about the hydrological characteristics and the natural runoff. Without such data, however, no engineering genius of the world could erect dams with safety. The next five years will be spent, therefore, on gathering data and gauging the water stands, and checking the flood peaks, etc. With the help of the United Nations, the river's regulation will practically recreate the living conditions in South-East Asia. The one-crop economy (namely rice) will be abandoned; cheap electricity will be available for further development; for the arid areas in Laos and Thailand, the regulation will mean possibility of irrigation and a new abundance of crop. Ultimately, it would mean *the conquest of hunger*, the greatest chance for the *improvement of public health*, and a real revolution in South-East Asia.

Little was heard of the *international conference* which in the summer of 1957 was held in Moskva on problems of treatment, of functional reestablishment and of restoration to active work of the *disabled war veterans*, the fighters of the resistance, and the people who returned from deportations. The conference was created by the *Inter-*

national Federation of the Participants of Resistance and the Soviet Committee of War Veterans. Many European governments sent physicians for their representation. This was the third conference of this group (the previous ones were held in 1954 at København and in 1956 at Paris). Many of the emissaries were former prisoners of fascist torture chambers, of concentration camps, or deported and underground resistance fighters. The chief role at the conference was played by Gilbert Dreifuss, professor of medicine at Paris, and a former prisoner of Mauthausen, who stated that out of a hundred deported French persons only 10 returned to their fatherland, and that in 1954, only 4 of the 10 were still alive.

A Hungarian physician (L. Farkas) showed that from the German concentration camps less than 6% of the deported Hungarians could return; out of this group, about 80% are still alive. Similar statistics were produced by other countries. The cause of depopulation was partly the gas chambers and the crematories, partly the terrible living conditions which resulted in serious illnesses leading to death. A French observer (L. Fiche) showed that mortality was definitely higher among the returned internees than in the general population. Study of the deported people shows the existence of a definite "camp disease" and "post-camp disease" which is characterized by a syndrome of progressive asthenia, premature aging of the tissues, injuries of the central nervous system and dystrophy (as a sequela of hunger). The chronic progressive asthenia is due to a stimulation of the hypothalamus or to a neural stress of this region of the brain, which will result in over-exhaustion. Several endocrine glands are also out of order in this asthenic complex, which has no specific therapy, except psychotherapy.

Reports from the Chung Shan Medical College in Canton announced that the *infection of histoplasmosis* finally reached China. It was imported by a native who returned from Singapore in 1954, and most probably contracted the disease in that town. The patient died, but an autopsy was not per-

mitted by the man's relatives. Previously no case of histoplasmosis was seen in China.

And what about the *cholera outbreaks in Red China*? Many former observers considered that cholera is endemic in China; that its foci are in Shanghai, Wuhan, and the Yuan River basin in Hunan province; that epidemic outbreaks come in regular cycles every 4-5 years. On the other hand, the National Quarantine Service maintained that there had been no cholera in China; that it is imported from abroad. Modern books of western medicine accept the view that the disease is endemic in China. Did it exist in ancient times? Nobody seems to know. Most Chinese authors agree that cholera was introduced to China around 1820 from India, when it was introduced from Burma and Bangkok by the sea route, and first attacked Canton, Wenchow, Ningpo, and the Yangtze Valley. Thereafter, cholera frequently broke out in China. It is said that the cholera outbreaks in unoccupied China during the war were the result of *bacteriological warfare* which was conducted by the *invading Japanese Army*. After 1945, cholera was widespread in China, which is ascribed to a possible attempt of the Japanese to scatter their stock of cholera vibrios for destroying the evidence of their activities. By the way! At the Russian trial of Japanese war criminals in Far-Eastern Siberia, it was revealed that Detachment 731 of the Japanese Army could produce as much as 300 Kg. plague bacteria, 600 Kg. anthrax bacteria, and 1 ton of cholera vibrios in a month.

The campaign against *schistosomiasis in China* is "leaping forward" according to the Secretary of the Antischistosomiasis Committee of the Central Committee of the Chinese Communist Party. He says in a medical journal that this happened because now "the East Wind is prevailing over the West Wind." Indeed, schistosomiasis took many victims among the Chinese. In the Huangmei County, for instance, there was a lake which the local inhabitants called "Ghost Lake." It was usually dry in winter, full of weeds and snails. Those who used the lake bed to grow crops and to pasture cattle, often

became weak, emaciated, and finally died with blown-up bellies. A number of households were thus completely wiped out. People suspected the presence of evil spirits, and the inhabitants migrated to other places. Now, by the efforts of the antischistosomiasis campaign, the lake bed was ploughed through several times, and the snails were buried and destroyed. This shows, according to the Secretary, that "... the political consciousness of the masses is rising rapidly. . . ." It is also a result of the Communist emancipation of the mind (he continues) that people have changed their *age-old habits of defecating in the open*. "Both human and animal excrements are under control." Homes have both "outhouses and animal pens. This just shows that the *mass spirit* and effort can accomplish more, faster, better, and more economically . . ." finishes the Party-conscious adulator of Mao.

The cultivation of the so-called *traditional medicine in China* is best shown by the recent re-publication of the oldest medical classic, the *Hwang Ti Nei Ching Su Wen*, which was originally written probably more than 2,600 years before Christ!, probably before the Ch'in and Han dynasties. (Hwang Ti means "the yellow Emperor," and his reign is put at about 2697 B.C.) This is the first work which summarizes traditional Chinese medicine in antiquity. It records medical theories current some 20 centuries ago. The *Su Wen* ("Small Questions") is actually a medical encyclopedia covering many branches and topics in physiology, anatomy, pathology, and therapeutics.

Appendicitis is still one of the most often misdiagnosed diseases. A member of the *Leningrad Medical Institute* (A. P. Mohnenko) wanted to know what the difference was between the administrative (or policlinical) and the final clinical diagnosis of the admissions to the 1500-bed Mechnikov Hos-

pital in his city. During 1955, the diagnosis of 2,101 cases out of 21,478 admissions was found incorrect. This is about a 10% overall error in administrative diagnosis. It is especially interesting to know that in 24.3% of the *appendicitis admissions* the diagnosis was incorrect (a total of 1,209 patients). The true condition of these patients was found to be something else, for instance, invasion of helminths (6.6%), uterine troubles (8.3%), kidney stones (13.0%), gastritis (9.7%), etc. But matters are not better anywhere else in the diagnosis of appendicitis. In a recent survey from the Royal Infirmary of *Edinburgh*, doctors find that the error tends to be in the overdiagnosis, other diseases being diagnosed as appendicitis five times as often as appendicitis is diagnosed as something else. The mistake is three times more common in females than in males.

It is a real problem for the general practitioner of our days to keep up with the development of his science. He can be easily cut off by lack of time or by distance from all so-called postgraduate courses. But, being devoted to his own duties may also put him into a so-called academic isolation. He will forget how to study, how to organize his thoughts and decisions in a logical academic and scientific way. Now, it is a general observation that the reaction of the average doctor to paper by post is almost nil. The question is: what is the best way to reach his mind and to catch his attention? In England, also in the U.S., attempt is now made to send information by tape and by disc. The College of General Practitioners in England has a *Medical Recording Service* which sends out recordings regularly to its members. (With this Service a new problem arises: how to force the practitioner to take time and to listen to the tape recordings.) . . . *Multa paucis!*

The Sir Henry Wellcome Medal and Prize

COMPETITION FOR 1959

THE competition is open to all medical department officers, former such officers, of the Army, Navy, Air Force, Public Health Service, Veterans Administration, The National Guard and the Reserves of the United States, commissioned officers of foreign military services, and all members of the Association, except that no person shall be eligible for a second award of this medal and prize and no paper previously published will be accepted.

The award for 1959, a medal, a scroll, and a cash prize of \$500, will be given for the paper selected by a committee composed of the Association's vice-presidents which reports on the most useful original investigation in the field of military medicine. The widest latitude is given this competition, so that it may be open to all components of the membership of the Association. Appropriate subjects may be found in the theory and practice of medicine, dentistry, veterinary medicine, nursing and sanitation. The material presented may be the result of laboratory work or of field experience. Certain weight will be given to the amount and quality of the original work involved, but relative value to military medicine as a whole will be the determining factor.

Each competitor must furnish six copies of his paper which must not be signed with the true name of the author, but are to be identified by a *nom de plume* or distinctive device. These must be forwarded to the Secretary of the Association of Military Surgeons of the United States, Suite 718, 1726 Eye St. N.W., Washington 6, D.C., so as to arrive at a date not later than 20 June 1959, and must be accompanied by a sealed envelope marked on the outside with the fictitious name or device assumed by the writer and enclosing his true name, title and address. The length of the essays is fixed between a maximum of 10,000 words and a minimum of 3000 words. After the winning paper has been selected the envelope accompanying the winning essay or report will be opened by the Secretary of the Association and the name of the successful contestant announced by him. The winning essay or report becomes the property of the Association, and will be published in *MILITARY MEDICINE*. Should the Board of Award see fit to designate any paper for "first honorable mention" the Executive Council may award the writer life membership in The Association of Military Surgeons, and his essay will then also become the property of the Association.

NOTES

Timely items of general interest are accepted for these columns. Deadline is 3rd of month preceding month of issue.

Department of Defense

Ass't Secretary (Health & Medical)—HON.

FRANK B. BERRY, M.D.

Deputy Ass't Sec'y—HON. EDW. H. CUSHING, M.D.

HONORED

Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical) was honored recently by New York University when it presented him with its University Medal for his distinguished services to his country.

ARMED FORCES DAY

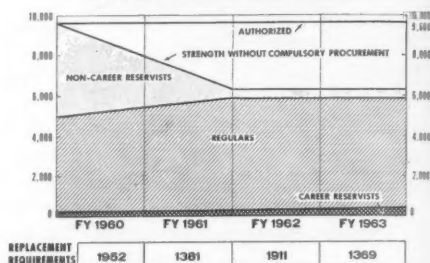
The third Saturday in May (the 16th) will be observed by our country as *Armed Forces Day*. This is not a day to be militant but rather to inspect and observe what our Armed Forces are doing to maintain peace. As a nation we have always desired peace and only through POWER FOR PEACE can that peace be maintained.

Unfortunately the world has not yet arrived at the point where armaments may be laid down and the money spent on them go for constructive purposes for the benefit of mankind. There always appears to be a dictator or two who feels that his position depends wholly on a display of his armaments even to the extent of war.

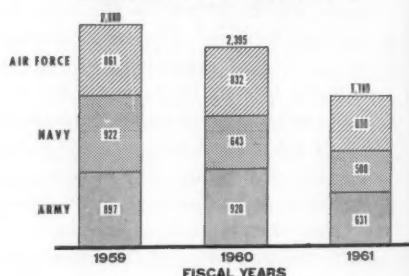
PHYSICIANS NEEDED

The following interesting graphs will show the need for physicians in the military services.

DEPARTMENT OF DEFENSE NEED FOR PROCUREMENT OF PHYSICIANS



DOD ESTIMATED GROSS REPLACEMENT FOR MEDICAL CORPS OFFICERS*



* INTERNS EXCLUDED

Army

Surgeon General—MAJ. GEN. SILAS B. HAYS

Deputy Surg. Gen.—MAJ. GEN. JAMES P. COONEY

ASSIGNED TO SGO

Colonel Valentine M. Barnes, Jr., MPC, has been named Provost Marshal in the Office of the Surgeon General of the Army.

A native of South Carolina, Colonel Barnes graduated from Clemson College in 1930 and became a second lieutenant in the Infantry Reserve that same year. During World War II he served in the European Theater and during the Korean Conflict was

with the Prisoner of War Command for 15 months. He had been assigned as Chief of Staff, XVI U. S. Army Corps, Omaha, Nebraska, before this assignment to the Surgeon General's Office.

THE MACHINE AND THE SOLDIER

"... there is a danger that we may become so enthralled by machines and weapons systems, that we will lose sight of the fact that the man—the individual soldier—is the supreme element in combat. That is the reason why the foundation of our system of discipline is the same as the very foundation of our system of government—the preservation of the dignity of the individual."—*Army Information Digest*.

Navy

Surgeon General—REAR ADM. BARTHOLOMEW W. HOGAN

Deputy Surgeon General—REAR ADM. BRUCE E. BRADLEY

ASSIGNMENTS IN BUMED

Captain Romulus L. May, MC, has been assigned to the Bureau of Medicine and Surgery for duty as Head, Surgery Branch, Professional Division.

Commander Robert S. Herrman, MSC, has been assigned to the Bureau of Medicine and Surgery for duty as Head, Clinical Psychology Section, Neuropsychiatry Branch.

Lieutenant Commander Ouida C. Upchurch, NC, has been assigned to the Bureau of Medicine and Surgery as Head, Standards and Training Section, Professional Branch, Nursing Division.

HONORED

Captain Maurice Schiff, Chief of the Eye, Ear, Nose and Throat Service at the U. S. Naval Hospital, Oakland, California, was selected to receive the Harris P. Mosher Memorial Award of the American Laryngological, Rhinological and Otological Society.

His paper "Juvenile Nasopharyngeal Angiofibroma" was rated "A Plus" among

those submitted for Fellowship. He was invited to present his paper at the annual meeting of the Society on March 12 which was held in Hot Springs, Va.

POSITION OF SECRETARY

Captain Lloyd B. Shone, MC, Director of the Occupational Medicine and Dispensary Division in the Bureau of Medicine and Surgery, has been elected Secretary of the American Academy of Occupational Medicine. Captain Shone holds both dental and medical degrees.

MEDICAL ASPECTS OF SPECIAL WEAPONS

The twenty-eighth presentation of the Naval Medical School's Course in the Medical Aspects of Special Weapons was held at the U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland, March 8-22, with Captain L. J. Pope, MC, Commanding Officer of the School acting as coordinator.

Over 3,200 officers have attended the courses which have been lengthened to a two week period since 1953. In this present presentation there were 240 Reserve Officers of the U. S. Navy, Army, Air Force and Public Health Service.

NURSES CONFERENCE

A five-day conference for Chiefs of Nursing Service at continental U. S. Naval Hospitals will be held at the Bureau of Medicine and Surgery, Washington, D.C., May 4-8.

The theme for this conference is "Administration of a Nursing Service for Improvement of Patient Care."

SELECTED FOR REGULAR NAVY

Twelve candidates were recently selected by the Naval Examining Board from more than forty applicants for appointment in the Regular Navy Dental Corps.

Those selected are: Meredith S. Burch, John M. Driscoll, Glenn E. Hamme, Edwin E. McDonald, Robert E. Moore, Jerome A. Smith, Charles G. Strange, William E. Sugg, Robert E. Timby, Ernest T. Witte, James T. Clynes, Henry A. Stallworth.

The next Board to consider applications for appointment in the Dental Corps, U. S. Navy, is scheduled to convene during August 1959.

DENTAL CARE—1958

During Calendar Year 1958, some 7,475,000 dental procedures were performed in Navy dental facilities. A breakdown of procedures reveals there were approximately 3,079,000 operative, crown and bridge procedures; 83,000 prosthodontic procedures, 394,200 oral surgery procedures, and 575,300 periodontic procedures. Approximately 1,702,000 radiographs were taken, and 1,641,500 dental examinations and post-operative treatments given.

Of the total number of dental procedures rendered, 6,890,000 were performed for Navy and Marine Corps personnel, 74,000 were for U. S. Army and U. S. Air Force personnel, and 373,000 were for military dependents. Approximately 285,000 procedures for dependents were performed overseas.

RETIRED

The following officers of the Medical Corps of the Navy have recently been retired: Captains Nicholas E. Dobos, John B. MacGregor, and James D. Viecelli.

Captain Ferris G. Hodge, DC, was placed on the Temporary Disability Retired List on February 28. During World War II he served in the Army, during which time he was trained in demolition work, and as a parachutist completed 26 jumps. In 1949 he was appointed a Lieutenant Commander in the U. S. Navy Dental Corps.

The following Medical Service Corps officers were placed on the retired list of officers of the Navy, effective March 1: Commander Charles V. Quigley; Lieutenant Commanders Warren D. Decious, Walter M. Florie, and Lieutenants Russell R. Harrison and Joseph F. Ramsey.

ST. ALBANS HOSPITAL AUDITORIUM

The dedication ceremonies of the Rear Admiral Lester L. Pratt Auditorium at the

U. S. Naval Hospital, St. Albans, New York, were held on February 16. The auditorium was named to honor the memory of the first Commanding Officer of St. Albans Hospital.

The principal address was made by Major General George E. Armstrong, U. S. Army, Retired, formerly Surgeon General of the Army.

COURSE AVAILABLE

Manual of the Medical Department, Part I NavPers 10708-2 (1959) is now available. The course consists of nine objective type assignments and is evaluated at twenty-four Naval Reserve promotion retirement points. Additional credit *will not* be given to those who have completed NavPers 10708-1 course.

Air Force

Surgeon General—MAJ. GEN. OLIVER K. NIESS

Deputy Surg. Gen.—MAJ. GEN. OLIN F. MCILNAY

PROMOTIONS

The following have been promoted to the rank of colonel, Air Force: William E. Bills, VC; R. L. Bryant, MSC; P. C. Bullard, MSC; R. E. Clark, MSC; R. J. Coker, MSC; O. J. Eslick, MSC; Claretta Evans, NC; F. L. Holihan, MSC; Neil C. Macear-chern, VC; P. E. McMahan, MSC; Salvatore L. Monaco, DC; N. S. Ritter, MSC.

Public Health Service

Surgeon General—LEROY E. BURNEY, M.D.
Deputy Surg. Gen.—JOHN D. PORTERFIELD, M.D.

POLIO TREND UPWARD

There is definitely an upward trend in polio. For the first 9 weeks of this year there were 193 cases as against 153 for the same period last year. Of these there were 135 paralytic cases as against 87 for the

same period in 1958. More emphasis must be placed on vaccination.

RAPID DIAGNOSIS

Fluorescent antibody technique, originally discovered 10 years ago by Dr. A. M. Coons of Harvard, is now being further investigated at the Communicable Disease Center of the Public Health Service, Atlanta, Georgia.

The technique offers a means for the more rapid diagnosis of such communicable diseases as rabies, polio, influenza, typhus fever, and diphtheria. Material from other diseases is being studied. Instead of hours, days, or weeks being required, identification can be made in minutes.

The procedure is as follows: antibodies for a specific disease are stained with a fluorescent dye, then dropped on a slide which has been smeared with the material to be identified. The slide is washed and it has been found that the antibody and captured agents of the disease (viruses or bacteria) remain. There is fluorescence of this remaining material on the slide under ultraviolet illumination. No fluorescence—no specificity.

MUSCLE BIOPSY

The importance of muscle biopsy in cases of muscle hypotonia in infants has been pointed out in a report by Drs. J. Godwin Greenfield, Tillye Cornman, and G. Milton Shy of the National Institute of Neurological Diseases and Blindness.

Their study has shown that the prognosis was divided into three groups—infantile muscular atrophy and congenital dystrophy cases which were considered progressive; benign congenital hypotonia cases which showed improvement; and central core disease cases which remained stationary.

Biopsy is important to determine if the case falls in a category where treatment might be of some benefit, and also for the purpose of prognosis.

GOUT

Zoxazolamine, used for several years as a muscle relaxant, appears to have some merit

in the treatment of gout. The drug has been under study at the National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda, Maryland.

The drug has shown its ability to remove up to six times more uric acid from the body than any drug formerly used.

INTERNATIONAL RESEARCH FELLOWSHIPS

The International Research Fellowships program of the National Institutes of Health, Bethesda, Maryland, offers medical research training in this country to scientists from abroad. The program includes 30 countries.

Information may be obtained from the Chief, Foreign Grants and Awards, Division of Research Grants, National Institutes of Health, Bethesda 14, Md.

RESEARCH BOOKLET

Building Medical Research Manpower is a booklet describing National Institutes of Health opportunities for training and development available to physicians and other professional workers desiring to prepare for a career in medical or medically related research. For copy write to Chief, Clinical Center, National Institutes of Health, Bethesda 14, Md.

INDUSTRIAL ENVIRONMENT MANUAL

The Industrial Environment—Its Evaluation and Control (PHS Publication No. 614) is a 364-page syllabus devoted primarily to fundamental principles and methods employed in the evaluation and control of the working environment. Copies of the syllabus may be procured from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., for \$2.75 per copy.

CANCER PUBLICATION

Morbidity from Cancer in the United States (PHS Publication No. 590) which was recently released shows a consistent relationship in the incidence of cancer of certain parts of the body among the lowest one-third income group in each of the ten areas

studied: Atlanta, Birmingham, Dallas, New Orleans, San Francisco, Denver, Chicago, Detroit, Philadelphia and Pittsburgh.

A copy of the report is available from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., for \$1.00.

NATIONAL LIBRARY OF MEDICINE

In an article by Major William C. Borden, Medical Corps, U. S. Army, published in *The Military Surgeon* (now *MILITARY MEDICINE*), Volume 20, p. 33, January, 1907, he stated: "... in time the library and medical museum of the Surgeon General's office now at the corner of Seventh and B Streets, Southwest, will have to be provided for elsewhere. The city improvement plan, which will undoubtedly be quite closely adhered to in the future, disposes of this brick building. For this reason, Congress has not favored further appropriations of money for extensive repairs or extension."

Finally, fifty years later we are soon to see the groundbreaking for the National Library of Medicine (present name of that Library of the Surgeon General) which, incidentally, is still housed in the same building mentioned by Major Borden!

RETIRED

The following Commissioned Officers from the Public Health Service have been retired: Medical Directors William A. Miller and Seymour D. Vestermark, and Sanitary Engineer Director Carl E. Schwob.

Veterans Administration

Chief Medical Director—WILLIAM S. MID-
DLETON, M.D.

Deputy Chief Med. Dir.—R. A. WOLFORD,
M.D.

VETERANS

The number of veterans in civil life at the end of December 1958 was 22,717,000; at the end of January, 22,713,000 (estimated).

World War I veterans accounted for a loss of 8,000.

The average daily patient load in hospitals in December was 111,649 and in January, 115,195.

Outpatient visitors for medical care totaled 191,121 for January.

ASSIGNMENT

Dr. Walter S. Pugh has been appointed manager of the Veterans Administration Hospital, Wilkes-Barre, Pa. He succeeds Dr. Lewis G. Beardsley who recently retired from VA service.

A native of Utica, New York, Dr. Pugh engaged in private practice in Utica until he entered the Army Medical Service in 1940 in which he served until 1946. After his release from the military service he joined the VA and became chief medical officer of the regional office in Syracuse, N.Y. He served again in the active military service from 1950 to 1952, after which he became chief of professional services at the VA hospital in Providence, R.I.

HOSPITAL BEDS

Recently President Eisenhower approved an authorized capacity of 125,000 beds for the Veterans Administration hospitals.

The Administrator of the Veterans Administration has full authorization to shift beds or hospitals from one type to another as the occasion demands with the advances of medicine and shifts in the veterans population.

MENTAL HYGIENE UNITS

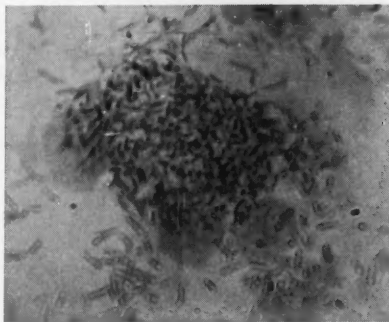
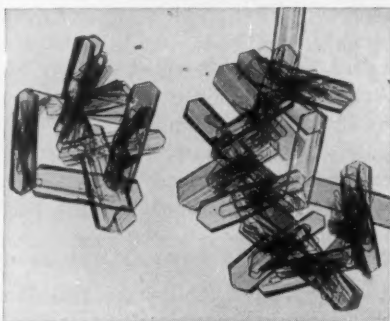
The first mental hygiene day center for treatment of veterans was recently established at the Veterans Administration Outpatient Clinic in Brooklyn, New York. The clinic director is Dr. Philip R. Casesa.

The day center program is designed primarily to provide more and better outpatient treatment for the increasing number of veterans being released from the VA hospitals after treatment for mental illnesses.

It is expected that more of these mental

AN IMPORTANT CONTRIBUTION TO THE TREATMENT OF LEPROSY...

CIBA-1906



CIBA-1906, A THIOUREA DERIVATIVE, HAS SHOWN THE FOLLOWING ADVANTAGES DURING 4 YEARS OF CLINICAL TRIAL IN OVER 20 COUNTRIES:

- reliable antibacterial action in both lepromatous and tuberculoid leprosy, even in patients unresponsive or resistant to other antileprosy drugs.
- extremely free of toxic side effects; well tolerated even by children.
- produces prompt reduction in bacterial count.
- "lepra reactions" occur rarely and in mild form.
- does not cause depression; may produce a sense of well-being.
- remains fully effective when combined with other antileprosy agents.

For further information write...

CIBA Limited, Basle, Switzerland.

hygiene clinics will be established throughout the country in the next few years.

HONORED

Dr. John B. Barnwell, Chief of Medical Research and Education for the Veterans Administration was selected recently as one of the 10 top career men in the Federal Government for 1958-59 by the National Civil Service League.

The honor came to Dr. Barnwell for his part in the organization of the VA-Armed Forces cooperative study of the chemotherapy of tuberculosis which was begun in 1946. His work played a large part in giving medicine modern drug treatments for tuberculosis.

BONE MARROW CELL STORAGE

Successful preservation of living bone marrow cells in a frozen state has been accomplished by a research group headed by Dr. Nathaniel B. Kurnick, Chief of the Hematology Service at the Veterans Administration Hospital, Long Beach, California.

This accomplishment will be of great value to the patient who is to receive radiation therapy. His own bone marrow cells taken prior to therapy can be preserved and returned to him after therapy when it is so necessary that he have a boost in those cellular elements. No reaction was noted from the return of the cells to the patient.

It is said that the bone marrow cells preserved at 79 degrees Centigrade may be stored for at least a year.

National Guard

PROMOTED

Congratulations are in order for Doctor William H. Triplett who was President of the Association of Military Surgeons in 1951. He was promoted to Brigadier General, Maryland National Guard last December. We just received this fine news recently.

General Triplett is retired and is living at 505 Stamford Road, Baltimore 29, Md.

New York Chapter

CORRECTION

In the February issue of *MILITARY MEDICINE*, page 159, the name of the 2nd Vice-president of the New York Chapter was erroneously given as Major Edward A. Barnett, MC, USAR. The correct name is Major Edward A. Barrett, MC, USAR.

Miscellaneous

HONORED

Dr. Howard A. Rusk of New York City was honored on February 16 at the AMA's Congress of Industrial Health at Cincinnati when he was given the 1958 Physician's Award which is presented annually by the President's Committee on Employment of the Physically Handicapped.

Dr. Rusk is director of the Institute of Physical Medicine and Rehabilitation in New York which he established in 1951.

MODERN MEDICAL MONOGRAPHS AWARDS

In the competition for the 1958 Modern Medical Monographs Awards first prize was accorded to Paul D. Hoeprich, M.D., and John R. Ward, M.D., co-authors of the winning manuscript—"The Fluids of Parenteral Body Cavities." These doctors are Assistant Professors of Medicine at the University of Utah.

Honorable Mention for excellence was awarded to manuscripts submitted by Paul W. Boyles, M.D., University of Miami; Mary Giffin, M.D., Medical Director, North Shore Mental Health Clinic, Highland Park, Ill., and Victor Herbert, M.D., Mount Sinai Hospital, New York City.

UTILIZATION OF RED CELLS

In a "Statement on Preparation and Use of Separated Red Cells in the Maximum Utilization of Blood" the National Research Council urges all agencies to take steps to utilize the cellular elements of blood donated for the plasma content. Persons engaged in

the collection of blood will do well to obtain a copy of this statement. Copies may be obtained from the National Research Council, Washington 25, D.C., or from the Joint Blood Council, Inc., 1832 M St., N.W., Washington 6, D.C.

COLOR MOVIE OF RETINA

The first full color motion picture of the retina was shown at the National Institutes of Health on February 28. Dr. Murray C. Brown of the Institutes at Bethesda, Maryland, has stated that this will open up avenues for the investigation of studies of the brain as well as circulatory disturbances related to heart diseases and arteriosclerosis.

Smith Kline and French Foundation and CBS Laboratories cooperated in making this new technic possible.

MEDICAL SERVICE TO SE ASIA

The People to People Health Foundation, Inc., has been established for the purpose of staffing and operating a hospital ship as a medical service to the people of Southeast Asia. The movement has been endorsed by President Eisenhower who promised to make the USS *Consolation* available. That ship is now "mothballed."

Dr. William B. Walsh, 1835 Eye St., N.W., Washington 6, D.C., is president of the Foundation.

NUCLEAR MEDICINE SECTION ESTABLISHED

The School of Medicine of the University of Chicago has established a Section on Nuclear Medicine. The Rockefeller Foundation has approved support for the new unit of up to \$500,000 and the University and other sources will provide additional funds.

FLOWMETER FOR BLOOD

An instrument used to measure directly the flow of blood in the body without entering the vessel has been devised by Dr. Francis L. Abel of the department of physiology at the University of Wisconsin Medical School, Madison, Wisc.

The flowmeter operates much like an elec-

tric generator. Magnetic lines of force cut by the flowing blood give a measurable quantity—induced electric potential—which is directly proportional to the volume of blood in the vessel.

DEPTH MEDICINE

Medicine will have to deal with greatly increased pressures should we get many of the aluminum submarines which might be fabricated as a result of the one such submarine now being designed for ocean depths three miles below the surface.

The Aluminaut will be about 48 feet long, with a 30-foot cylindrical pressure hull made of 6-inch aluminum plate. Its 7-foot inside diameter will accommodate a pilot and two scientific observers, together with more than 3,400 pounds of scientific instruments. It is being planned to range nearly 100 miles along the ocean floor during a 36-hour deep-water voyage.

PHYSICIAN OPENING

A general practitioner is needed in Big Piney, Wyoming. Anyone interested should correspond with Paul N. Scherbel, Secretary, Lions Club, Big Piney, Wyoming.

RESEARCH

According to the Pharmaceutical Manufacturers Association \$170 million was spent for research and development in 1958 by the pharmaceutical industry. It is expected that about \$190 million will be spent in 1959.

ILLINOIS MEDICAL LICENSES

Physicians licensed in Illinois should take note that all licenses expired on July 1, 1958. A renewal fee of \$6.00 payable every two years (even numbered years) in June will be required to keep license in force. Applications should be made to Department of Registration and Education, State of Illinois, Springfield, Ill.

FOR MEMBERS

Attractive coasters bearing the seal of our Association are available to members. Send

8¢ in stamps to cover postage for your supply.

MEETING

The American Venereal Disease Association will hold its annual meeting April 27 and 28 in the Auditorium of Johns Hopkins Hospital, Baltimore, Maryland, in cosponsorship with the U. S. Public Health Service of the Tenth Annual Symposium on Recent Advances in the Study of Venereal Diseases.

SYMPOSIUM IN OKLAHOMA

Diagnosis and Treatment of Thyroid Diseases is the title of the Fifth Annual Surgery, Radiology, Pathology Symposium to be held on May 8 and 9 at the University of Oklahoma Medical Center, Oklahoma City, Okla. Complimentary registration will be granted for interns, residents, and physicians in the military service.

MEETING

The Second International Congress of the World Confederation for Physical Therapy will be held in Paris, 6-14 September. Further information may be obtained from the Librarian, Benjamin Franklin Library, Paris, France.

ELECTROCARDIOGRAPHY COURSE

Home Study Courses in Electrocardiography are available from the University of Southern California. For further information address that university, Box 25, 1200 North State St., Los Angeles 33, Calif.

FELLOWSHIPS AVAILABLE

Fellowships are available for postdoctoral study in research, preventive medicine, rehabilitation, and orthopedics through The National Foundation, 800 Second Avenue, New York 17, N.Y.

SURPLUS PROPERTY

Schools may obtain surplus scientific property from the government at very little cost many times by just picking up the items. Secretary Flemming, Department of Health, Education, and Welfare, states that a school

can obtain much useful equipment for its science and mathematics courses simply by: (1) getting in touch with the State surplus property agency and establishing the school's eligibility; (2) Sending the appropriate personnel to the warehouse to see what is actually available or likely to be coming in; (3) informing each science or mathematics teacher what is available and at the same time obtaining a list of items that each teacher would like to have for his classes; and (4) providing the State agency with a list of desired items so that the State agency can be on the lookout for them as they become surplus.

MONEY

Money is printed in Washington, D.C., and sent all over the country. But most of it seems to find its way back again.—*Changing Times*

GOVERNMENT

A recent study by the Tax Foundation, Inc., reveals that while the population of the U.S. has increased by about 33 percent in the past 20 years, the cost of Government, Federal, state and local—has increased almost 600 percent.—*Human Events*

BOOKLET AVAILABLE

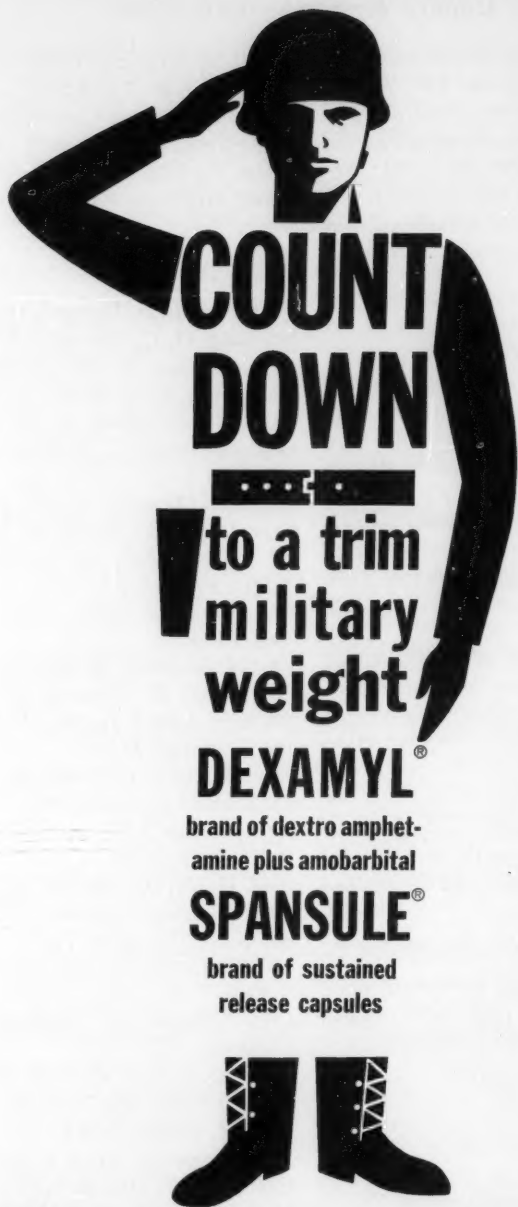
The Mentally Retarded Child at Home (Children's Bureau Publication No. 374) is a recently published booklet that is available from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., for 35¢ a copy.

DRUG BIBLIOGRAPHY

An Annotated Bibliography and Critical Review of Drugs and Performance (PB 131917) is a 90-page report available for \$2.25 per copy from the Office of Technical Services, U.S. Department of Commerce, Washington 25, D.C.

REPORTS AVAILABLE

The following reports are available from the Office of Technical Services, U.S. De-



One 'Dexamyl' *Spansule* capsule, taken in the morning, controls your patient's appetite all day long *and* improves his mood—thus sustaining morale even when the dietary regimen is severe.

Available on Federal Supply Schedule / GS-OOS-21410, Item No. 42-2



SMITH KLINE & FRENCH LABORATORIES

partment of Commerce, Washington 25, D.C.: *On the Stratospheric Sr⁹⁰ Fallout* (ANL-5920), 40 p., \$1.25; *External Environmental Radiation Measurements in the United States* (HASL-25), 35 p., \$1; *Reviews on Radiobiology* (AEC-tr-3353), 403 p., \$4.25; *Use of Radioactive Carbon C¹⁴ in the Study of Photosynthesis* (AEC-tr-3432), 111 p., \$1.50.

PAMPHLET AVAILABLE

When You Adopt A Child (Children's Bureau Folder No. 13) is a recently revised booklet for couples seeking to adopt a child. This advice, along with a lot of other very good advice, is given: "Free-lancing doesn't pay in adoption. Go to a good licensed or approved adoption or child-placing agency. You want a child with whom you will be happy and who will be happy with you. Turn thumbs down on any offer that is not made by a first rate agency."

Copies of the booklet may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., for 15¢ each.

ALCOHOLISM BOOKLET

Saving Men and Money, a 64-page booklet presents information on the problems involved in alcoholism. Copy may be obtained free from Chicago Committee on Alcoholism, 116 S. Michigan Ave., Chicago 3, Ill.

GOVERNMENT PUBLICATIONS

Atoms for Peace, USA 1958	\$4.50
No. Y3 At 7:2 P 31/3	
Hospitalization and Evacuation	4.00
No. D 114.7: M 46/v.1	
Animal Diseases	2.00
No. A1.10:956	
Trachoma Manual and Atlas55
PHS Publ. No. 541	
Persons Injured (July-Dec. '57)30
PHS Publ. No. 584-B 3	
U. S. Nat'l Health Survey Program ..	.25
PHS Publ. No. 584-A1	
Nurse in Civil Defense25
FCD 1.6/3:11-7/2	

Fitness of American Youth25
No. Pr 34.8: Y 8/2/958

Any of above may be obtained by writing to the Supt., of Documents, Govt., Printing Office, Washington 25, D.C. (Send check or money order—no stamps)

New Members

1/Lt. Francis H. Barnard, DC, USAF-R
Sr. Surg. O. C. Standifer, USPHS-R
Lt. Col. Robert S. O'Hern, MSC, USA
Dent. Surg. L. S. Wright, USPHS
Capt. A. S. Abraham, USAF-R, Ret.
Capt. Eleonora L. Chernewski, USAF-R
(MSpC)
SA Surg. Chester A. Farris, Jr., USPHS-R
Capt. Dwight F. Morss, Jr., MC, USA
SA Surg. Hubert A. Larson, USPHS-R
(Inact.)
Sr. Asst. Dent. Surg. Clare Venema, Jr.,
USPHS
Lt. Col. Sherwood P. Burr, Jr., MC, USAF
Capt. David M. Ginsberg, MSC, USA
SA Surg. John J. Ippolito, USPHS
Jan J. Waller, M.D.
Capt. Mario T. DeFelice, MC, AUS
Lt. Michael C. Carver, MC, USN
Lt. Col. Grace J. Hayden, USAF (NC) Ret.
R. C. Gutch, M.D.
Capt. Harold Abrams, MC, USA
SA NO Anne F. Mamula, USPHS
SA NO C. Margaret Fagler, USPHS
Maj. J. Leonel Villavicencia, MC Mexican
Army
1/Lt. Joseph A. Benkusky, USAF-R
(MSC)
Capt. Bernard H. Kasinoff, MC, AUS
JA NO Bettie Mae Meredith, USPHS
John H. Burger, D.D.S.
Maj. Charles B. Goldy, USAR, Ret.
Capt. Julia P. Murray, ANC, USAR
Maj. Paul E. Teschan, MC, USA
Capt. Charlotte E. Comley, ANC, USAR
Capt. Herman Black, MC, USAR
Sr. Surg. Alice G. Hildebrand, USPHS-R
(Inact.)
Griffin G. Frazier, D.D.S.
SA Surg. Martin Schick, USPHS

1/Lt. Clifford J. Audette, USAF (MSC)
 Capt. Charles H. Bridges, USAF-R (VC)
 Scient. Henry Platt, USPHS-R
 Capt. Octario Capo, USAF-R, DC
 Lt. Col. Adolph W. Brazda, USAF-R, Ret.
 Capt. Norbert R. McManus, USAR
 Lt. Col. William E. Gott, MSC, USA
 Surg. Paul A. Christley, USPHS-R
 Sr. Dental Surg. Julian C. Wesell, USP-
 HS-R
 Asst. Surg. Alan B. Retik, USPHS
 Maj. John A. Ariaudo, USAF-R, MC
 SA San. E. Virgil A. Minch, USPHS
 Sr. San. Eng. Lan J. Wong, USPHS-R
 Lt. Col. Roger D. Brown, USAF-R (MSC)
 1/Lt. Clarence D. Snyder, MC, USAR
 Dr. David W. O'Day
 Capt. Edward M. Johnson, MC, USA
 John G. Covino, M.D.
 Lt. Col. John L. Anderson, USAF, MC
 Surg. Calvin R. MacKay, USPHS
 Maj. Jerome Rudberg, MSC, USA
 Col. Harry G. Becker, MC, USAR
 Lt. Frank M. Roberts, MC, USN
 SA Pharm. Eugene S. Peiser, USPHS
 Capt. Emma L. Benning, USAF-R, NC

Deaths

ELLER, William D., Captain, MC, AUS, died in Midtown Hospital, New York City, December 9, 1958 at the age of 48.

Dr. Eller, a native of New York City received his medical degree from the University of Arkansas in 1941. He was veteran of World War II. He was clinical instructor of dermatology and syphilology at New York University College of Medicine; he wrote many articles on dermatology and was co-author of "Tumors of the Skin: Benign and Malignant."

Dr. Eller's office address was 745 Fifth Ave., New York 22, N.Y.

FENTON, Ralph A., Colonel, Medical Corps, Reserve, Inactive, died on November 2, 1958 at Portland, Oregon at the age of 78. He was a Life Member of our Association and a member of our Forty Year Club.

Colonel Fenton, a native of Lafayette,

Oregon, had received an A.B. degree from the University of Oregon in 1903, and was honored by that university in 1943 with the Sc.D. degree. He received his medical degree from Northwestern University School of Medicine. From 1911 he was on the faculty of the University of Oregon Medical School at Portland and from 1928 to 1946 he was head of the Department of Otolaryngology, after which he became professor emeritus. During World War I he served with the American Expeditionary Forces in France.

He was a member of the American Medical Association and served as a trustee from 1936 to 1945. He was past-president of the Oregon Academy of Ophthalmology and Otolaryngology and had served in important positions in a number of societies related to his specialty. In 1931 he was U.S. delegate to the International Military Medical Congress at The Hague. He was author of many articles related to his specialty.

Colonel Fenton lived at 1020 South Taylor St., Portland 5, Oregon.

HILLDRUP, Don R., Colonel, Medical Corps, U. S. Army, Retired, died at Indianapolis Memorial Clinic on January 28 following an abdominal operation. He was 71 years old.

A native of Indiana, Colonel Hilldrup entered the Army Medical Corps in 1917 and served with the American Expeditionary Force and the Army of Occupation in Germany. During World War II he helped establish hospitals in Central Africa. He had served as surgeon of the 5th and 6th Army Service Commands in the United States during the war. Just prior to his retirement in 1951 he was a member of the Army Retirement Medical Board in Washington.

He is survived by his widow who resides at 5672 North Illinois Street, Indianapolis, Ind. Interment was at Arlington National Cemetery.

HUBBARD, Milton E., Colonel, USAR-Ret., died at his home in San Francisco, December 24, 1958, of a coronary thrombosis. He was 65 years old.

A veteran of World War I, he pursued his medical studies and graduated from the University of Illinois College of Medicine in 1928. During the years 1928 to 1950 he was with the Veterans Administration except for his service during World War II when he was in the Army Medical Corps. In 1950 he was retired from the Veterans Administration because of physical disability (coronary). At that time he was Chief of Professional Services at Oakland, California VA hospital.

He is survived by his widow who lives at 255 Buckingham Way, San Francisco 27, California.

Interment was in the Golden Gate National Cemetery, San Francisco.

MAKEL, Hertel Philip, Colonel, Medical Corps, U. S. Army, Retired, died in the Veterans Administration Hospital, Lyons, New Jersey, on November 7, 1958 at the age of 70. Death was due to broncho-pneumonia.

A native of Maryland, Colonel Makel received his medical degree from Johns Hopkins University in 1915. He entered on active duty in the Army Medical Corps in May

1917. During World War I he served in France and remained in Europe until October 1919 when he was transferred to the U. S. Military Academy, West Point, New York. Subsequent service took him to the Canal Zone and to the Philippines. He was stationed at Tilton General Hospital, Fort Dix, New Jersey, from February 1941 to June 1942, and later became Chief of the Professional Services for the 2nd and 8th Service Commands during World War II. He was retired from the Army in September 1946.

Colonel Makel is survived by his widow (204 Paul Drive, Moorestown, New Jersey) and three sons.

FLESCHE, Bernard, Lieutenant Colonel, Medical Corps, Reserve, died at Lake City, Minnesota, where he had been practicing medicine. Death occurred on February 12 at the age of 54.

He had served at William Beaumont Army Hospital during the early part of 1944 after which he was assigned to the 5th Auxiliary Surgical Group which was sent to the European Theater.



NEW BOOKS

Books may be ordered through this association.

- Reminiscences and Adventures in Circulation Research.* Carl J. Wiggers, M.D., Grune and Stratton, New York, N.Y. Price \$9.75.
- Industrial Carcinogens.* R. E. Eckardt, M.D., Ph.D., F.A.C., Grune and Stratton, New York, N.Y. Price \$6.50.
- Color Atlas of Morphologic Hematology.* Geneva A. Daland, B.S. Edited by Thomas Hale Ham, M.D., illustrations by Etta Piotti, Harvard University Press, Cambridge, Mass. Price \$6.75.
- The Anatomy of the Nervous System—Its Development and Function.* Stephen Walter Ranson, M.D., Ph.D., Revised by Sam Lillard Clark, M.D., Ph.D., W. B. Saunders Company, Philadelphia, Pa. Price \$9.50.
- Diseases of the Colon and Anorectum.* Edited by Robert Turell, M.D., Volume I and II, W. B. Saunders Company, Philadelphia, Pa. (set 2 Volumes) Price \$35.00.
- The Family Medical Encyclopedia.* Justus J. Schif-feres, Little, Brown and Company, Boston, Mass. Price \$4.95.
- Handbook of Medical Hypnosis.* An Introduction for Practitioners and Students, Gordon Ambrose, L.M.S.S.A., George Newbold, M.B., B.S., M.R.C.S., M.M.S.A., D.R.C.O.G., D.C.H., The Williams & Wilkins Company, Baltimore, Md. Price \$6.75.
- Plague Fighter.* The Autobiography of a Modern Chinese Physician, Wu Lien-Teh, W. Heffer & Sons Ltd., Cambridge, England. Price 30s.
- Urology in Outline.* T. L. Chapman, Ch.M., F.R.C.S. (Eng.) F.R.F.P.S. (Glas), The Wil- liams & Wilkins Co., Baltimore, Md. Price \$6.75.
- A Practice of Thoracic Surgery.* A. L. D'Abreu, O.B.E., Ch.M., F.R.C.S., The Williams & Wilkins Co., Baltimore, Md. Price \$19.00.
- The Plasma Proteins.* Clinical Significance, Paul G. Weil, B.A., M.D.C.M., M.Sc., Ph.D., J. B. Lippincott Co., Philadelphia, Pa. Price \$3.50.
- Staphylococcus Pyogenes and Its Relation to Dis- ease.* Stephen D. Elek, M.D., D.Sc., Ph.D., D.P.H., The Williams & Wilkins Co., Baltimore, Md. Price \$15.00.
- Current Therapy—1959.* Latest Approved Methods of Treatment for the Practicing Physician, Ed- ited by Howard F. Conn, M.D., W. B. Saunders Co., Philadelphia, Pa. Price \$12.00.
- A Textbook of Neurology.* H. Houston Merritt, M.D., Lea & Febiger, Philadelphia, Pa. Price \$12.50.
- Surgery of the Sympathetic Nervous System.* Pro- fessor Sir James Paterson Ross, K.C.V.O., LL.D., M.S., F.R.C.S., F.R.A.C.S., F.A.C.S., The Wil- liams & Wilkins Co., Baltimore, Md. Price \$8.00.
- Diffuse Lesions of the Stomach.* Ian J. Wood, M.D. (Melbourne), F.R.C.P., F.R.A.C.P., and Leon I Taft, M.B., B.S., B.Sc. (Melbourne), The Wil- liams & Wilkins Co., Baltimore, Md. Price \$6.00.
- Cancer, Diagnosis and Treatment.* Edited by John B. Field, M.D., Ph.D., Little, Brown and Com- pany, Boston, Mass. Price \$18.50.
- The Mexican Soldier 1837-1847* (El Soldado Mexi- cano 1837-1847). Complete text in English and Spanish, J. Heffter, Apartado 517, Mexico 1, D.F. Mexico. Price \$3.00.

BOOK REVIEWS

OPERATIVE SURGERY. Vol. 8. Neurosurgery; Eye, Ear, Nose and Throat. Edited by Charles Rob, M.C., M.Chir., F.R.C.S., Professor of Surgery, St. Mary's Hospital, London; and Rodney Smith, M.S., F.R.C.S., Surgeon, St. George's Hospital, London. Distributed in U.S. by F. A. Davis Co., Philadelphia. Price per vol. \$19.50 (8 vols. in set).

The latter half of the eighth volume of this work is devoted to surgery of the ear, nose and throat. Sixty-nine pages are devoted to surgery of the ear including small sections on labyrinthectomy and stapes mobilization. Forty pages are devoted to the nose and paranasal sinuses, 10 pages to tonsil and adenoid surgery, and the remainder of the section to laryngeal problems, choanal atresia, and several minor conditions. Bronchoscopy is not included and esophagoscopy is mentioned only in connection with esophageal varices.

The book is profusely illustrated with what are in general good clear drawings showing each step of each operation. Some leave something to be desired in lack of detail. The text is brief and to the point but in some instances not as explicit as the neophyte in the field might wish.

Each procedure is preceded by a brief discussion of pre-operative considerations and followed by a statement on postoperative care.

One might wish that the general problem of pre- and postoperative management had received more complete consideration.

The book will serve as a useful reference for those taking postgraduate training in the field; but, except for the large number of illustrations offers little that is new. Also included in this volume is a section on neurosurgery including the management of head injuries, brain abscess, trigeminal nerve injection and cervical laminectomy. In addition to this there is a section on the eye. Both of these sections are also profusely and quite clearly illustrated.

DONALD F. PROCTOR, M.D.

PROGRESS IN PSYCHOTHERAPY. Vol. III—Techniques of Psychotherapy. Edited by Jules H. Masserman, M.D., Professor of Neurology and Psychiatry, Northwestern University; and J. L. Moreno, M.D., Director, Institute of Psychodrama and Group Psychotherapy. 324 pages. Grune & Stratton, Inc., New York and London. Price \$8.50.

This is the third volume of an excellent series, 324

continuing a broad international sampling of psychotherapy. In comparison with Volume I and Volume II it contains a greater number of "smaller papers," an indication perhaps that sources of truly basic and authoritative material are not inexhaustible and that the editorial task may become more difficult with succeeding publications.

There is no decrease in the general high quality of the essays. Ilza Veith and Nolan D. C. Lewis explore the history of psychotherapy, Frank and Ehrenwald discuss the effects of the doctrines, attitudes and expectations of the therapist on the therapeutic process and point out the compliant behavior of the patient even under "non-directive" conditions. Moreno presents his fundamental rules of psychodrama with not unexpected remarks about precedence and credits. "Family Groups and Family Therapy" by Ackerman and Behrens extends the study of human interaction to the almost universal group, the family, with development of such concepts as "family diagnosis" and "primary patient."

Under the section on special techniques are papers by Weinstein on the linguistics of delusions and mood change, by Beck on projective tests, and by various authors, on ancillary modalities and media.

Six papers gathered under psychopharmacology have an uneven application to problems of therapy. The final papers report on "Developments Abroad" and among them is possibly the finest of the short articles, E. E. Krapf's "Cultural Influences on the Process of Group Formation," contrasting Anglo-Saxon traits (of acceptance of the group as having somehow "esoteric and transcendental attributes" (Slavson), as being wiser than the individual, and as benevolently offering its protection in return for the yielding up of some self-interest for the greater good) with the Latin American hesitancy to submit oneself to the presumed dangers of equalitarian living without a protective and authoritarian group leader. Obviously these differences directly effect the spread and applicability of group psychotherapy in a geographically predictable manner.

CDR. THOMAS H. LEWIS, MC, USN.

BRAIN TUMORS—THEIR BIOLOGY AND PATHOLOGY. American Edition. By K. J. Zülch, M.D., Professor of Neurology, University of Cologne, Germany. 308 pages, illustrated. Springer Publishing Company, Inc., New York. Price \$9.50.

This concise, practical, workable book is the result of a vast experience in general pathology and

clinical practice, and in neurologic pathology in particular. Those American neurosurgeons accustomed to the usefulness and reliability of the Bailey-Cushing classification of brain tumors will find that Zülch, also, has based his classification on the parallelism of the biologic and morphologic characteristics of the different tumor groups (neuroepithelial, mesodermal, ectodermal, congenital and embryonic). Throughout the book the author has stressed the importance of a thorough knowledge of the *biological* characteristics of tumors, if the physician is really to understand his patients. He feels the day is past when tumors are to be dismissed with only a description of their gross and histologic appearance. He stresses the importance of such data as age and sex incidence; site preference and relative frequency there; "multiple" tumors in the same patient; growth properties; reaction of surrounding tissues; degree of malignancy; tendency, if any, for metastasis; hereditary factors; and per cent occurrence of brain tumors in large autopsy series.

The author believes that the entire tissue of the tumor must be studied, and not just the predominating individual cell by which the tumor may be "named." The last half of the book is devoted to a discussion of all "classifiable" tumors, including a list of synonyms, historical data, incidence and site, gross and histologic appearance, differential diagnosis, and the factors of metastasis and recurrence. Zülch feels that the astroblastoma is "relatively benign." He has included a section on such lesions as aneurysms, varices, parasitic masses, granulomas, and arachnoiditis—material hardly to be expected in a book concerned with the classification of brain tumors. There is a chapter on histologic technique which is really a condensed manual. The bibliography is very extensive, the index is adequate, and the illustrations, while not profuse or always too well reproduced, are well selected for demonstration. Structures are often referred to as being "tangerine sized," "cherry sized," "size of small fist," "size of small apple," or "consistency of cream of wheat."

The author is obviously disgusted, along with many another person, with the meaningless wilderness of names used in neuropathology. In his own words, "A prerequisite for any understanding between clinician and pathologist is the existence of a universally valid and comprehensible language, with terms that do not change yearly. Up to now the giving of names in tumor pathology has served as an exercise field for those with a passion for changes."

JOHN MARTIN, M.D.

THE CHEMISTRY AND CHEMOTHERAPY OF TUBERCULOSIS. 3rd Ed. By Esmond R. Long, M.D., Ph.D., Sc.D., Emeritus Professor of Pathology, Henry Phipps Institute for Study, Treatment and

Prevention of Tuberculosis, University of Pennsylvania. 450 pages. The Williams & Wilkins Company, Baltimore. Price \$12.00.

The author has indicated that the third edition of this book is a compilation and critical review of existing knowledge of the chemistry of the Tubercle Bacilli and their products, chemical changes and processes in the host, and chemical aspects of the treatment of tuberculosis.

Section I contains 14 chapters in considerable detail on such subjects as Structure, Staining and Reproduction of Tubercle Bacilli, Isolation and Laboratory Growth, Chemical Factors in Virulence, Enzymes, Respiration, Various Metabolic studies, Chemical Composition of Tubercle Bacilli and their Filtrates, and finally Biologic Activity of the Components of Tubercle Bacilli.

Section II on Chemical Changes in the Tuberculous Host includes 9 chapters on Chemical Composition of Tuberculous Tissues, Changes in Non-tuberculous Tissues, Chemistry of the Blood, Chemistry of Tuberculous Effusions and Exudates, Chemistry of Sputum, of Urine, and finally Nutritional, Physiologic, Metabolic and Hormonal changes in Tuberculosis.

Section III gives an exhaustive review of Chemotherapy of Tuberculosis in its 12 chapters, including subjects as History of Older Drugs, Streptomycin, P.A.S., Isoniazid, etc. The chapter on Cortisone reports favorable effects from the use of cortisone and ACTH in combination with antimicrobial drugs, especially when a hypersensitivity to the drug existed.

The Appendix contains the Identified Constituents of Mycobacteria including references. A full Index is found at the end of the text.

Colonel Long's book could have been written only by a dedicated person who had spent a life-time in research. It nicely summarizes the history of chemistry and chemotherapy of tuberculosis including the recent developments, which have been spectacular during the last 15 years. This book lays the chemical and chemotherapeutic foundations for future attacks upon the difficult problems of tuberculosis, and insures that they will be equally spectacular. This book is well worth reading by those interested in this facet of tuberculosis.

COL. EUGENE C. JACOBS, MC, USA

SURGERY IN WORLD WAR II. Ophthalmology and Otolaryngology. Medical Department, U.S. Army in World War II. Editor-in-Chief, Colonel John Boyd Coates, Jr., MC, USA; Editor for Ophthalmology, M. Elliott Randolph, M.D.; Editor for Otolaryngology, Norton Canfield, M.D. 605 pages, illustrated. Superintendent of Documents, Government Printing Office, Washington 25, D.C. Price \$5.00.

This book records the outstanding services which ophthalmologists and otolaryngologists performed during World War II. In discussing ophthalmology, note was taken by the authors of the history of the evolution of the administrative phases. These resulted in utilizing trained specialists to the utmost of efficiency possible under the conditions which presented themselves in carrying out the Army's varied missions.

Noteworthy progress was made in the care and education of the totally blinded and in the artificial eye program for the one-eyed soldier. Among the problems which were expertly solved was that of visual testing and the detection of malingering in all personnel situations dealing with induction or retention in the service of the nation. The Army furnished spectacles for 20% of its personnel. Various types of spectacles were designed for wear with gas-masks. This latter problem is still under consideration so as to make use of all advantages, and to eliminate all disadvantages. Mobile optical units working in the combat zone should be cited for their splendid work of repairing and replacing spectacles, thus retaining the services of tens-of-thousands of soldiers who might have been rendered ineffective without their glasses. A system of recording was also devised, so that the record of the patient's correction was available wherever he might be. Among the problems of the "zone-of-the-interior" was that of intra-ocular metallic foreign bodies due to land mines, and grenade fragments. Some of these injuries occurred among the millions of men who were in training. The intra-ocular foreign bodies that were not magnetic in character were difficult to remove. In the combat zone, intra-ocular foreign bodies were seen in appreciable numbers. These were due to fragments of metal from land mines, bullets, grenades, shells, aircraft bombs, and detonator caps. Ophthalmic surgeons did heroic work with some doomed eyes, and by using all the resources of equipment and ingenuity attained some gratifying results.

This volume will serve as a source of information and inspiration to medical students and internes. Research was not neglected either in the United States or abroad. Some of the subjects studied included the following: (1) New methods of treatment of non-magnetic as well as magnetic intra-ocular foreign bodies. (2) Prevention of symblepharon by use of anticoagulants. (3) Effects of antiseptics on the regeneration of corneal epithelium. (4) Night blindness. (5) Ocular complications of scrub typhus. (6) Corneal edema due to atabrine. (7) Nutritional amblyopia in American prisoners of war held by the Japanese. (8) Visual disturbances associated with head injuries. (9) Chemotherapy and antibiotic therapy. (10) Research was also carried out on uveitis and all of the surgical and non-surgical diseases of the eye in

a very scholarly and expert fashion by many officers of the Medical Department.

The problem of hearing was naturally important in the Army. The methods for testing hearing ability and the detection of malingering was developed to a high degree by the otolaryngologists in the armed services. The facilities for the rehabilitation of the deafened soldier were broadened, and a specialized center for aural rehabilitation was created. Research was initiated to reduce the volume of soldiers suffering from injuries and infections of the throat, sinuses, and larynx.

Plastic surgery was performed in ophthalmic plastic centers that specialized in repairing injured lids and orbits, and in otolaryngologic centers, in which remarkable work was done in aural plastic surgery and in the repair of injuries of the nose, and larynx.

This volume is not only a record of past events, but also a source of potential usefulness at this time and for the future in a world that is unfortunately not yet at peace.

COL. ROLAND I. PRITIKIN, MC, USAR.

BACTERIAL AND MYCOTIC INFECTIONS OF MAN. 3rd Edition. Edited by René J. Dubos, Ph.D., The Rockefeller Institute. 37 contributors. 820 pages, 116 illustrations. J. B. Lippincott Co., Philadelphia and Montreal. Price \$8.50.

Those acquainted with previous editions of this book know that it is one of the best texts of its kind. Once a book has established its reputation, the author or authors must continue to keep the contents abreast of new knowledge.

The task of revising the third edition has apparently been well done. Although as stated in the preface, the size and format are essentially unchanged, the text itself has been largely rewritten. This can be seen by comparing it with earlier editions.

As in previous versions, the book is well illustrated and it is interesting to note the increasing number of electron-micrographs used, attesting to the wider use of this instrument for studying the fine details of microbic structure.

Two new chapters have been added. The first, by Dr. Dubos who is also Editor of the entire volume, is a brilliant essay on the "Evolution and Ecology of Microbial Disease." Despite its controversial approach, this chapter is one that every student should be required to read, if only to learn how much we still have to learn about the etiology of infectious diseases.

The other new chapter deals with the "Chemotherapy of Microbial Diseases," by Walsh McDermott of Cornell University. Those who may look to this chapter for lists of chemotherapeutic agents, dosages and their spectrum of activity will be disappointed. However, those who wish to arrive at

some understanding of what chemotherapeutic agents are, physiologically and pharmacologically, from the standpoint of the host as well as of the parasite, will find this section most rewarding indeed.

The author has not only succinctly indicated the status of our present knowledge of chemotherapeutic agents and their actions but, more significantly, has pointed out many of the problems still awaiting solution.

Those who have the earlier editions should make room on their shelves for this one. New users will find it indispensable.

MORRIS C. LEIKIND

INTRACARDIAC PHENOMENA. 2nd Edition, Revised and Enlarged, of Cardiac Pressures and Pulses. By Aldo A. Luisada, M.D., Director, Division of Cardiology and Associate Professor of Medicine, The Chicago Medical School; and Chi Kong Liu, M.D., Chief, Laboratory of Catheterization and Associate of Clinical Medicine, The Chicago Medical School. 179 pages, illustrated. Grune & Stratton, New York and London. Price \$9.50.

This revised monograph on intracardiac phenomena in right and left heart catheterization has been expanded from 116 to 179 pages. The revision was imposed by the development of left heart catheterization and the authors have drawn from their own experience with this method to enlarge the chapter on technique, as well as the chapters on normal and abnormal pressures and patterns in the heart and great vessels.

Five new chapters on intracardiac phonocardiography and electrocardiography have been added, elaborating upon the former in the normal, in acquired, and in congenital heart disease. The authors' use of a 5% saline-filled catheter as an intracardiac exploring electrode and the simultaneous recording of pressure pulse and sonic vibrations from a high frequency transducer is described. No comparison of the latter is made with intracardiac microphonic recorded phonocardiograms. The book is well illustrated from original records and includes a section on formulae used in cardiac catheterization.

The small series of combined mitral stenosis and insufficiency does not resolve the problem of differentiating from the pressure pulse the hemodynamic significance of these lesions.

Although conclusions are drawn from rather small series and from pattern variations, this monograph nonetheless fills a need of the young cardiologist interested in the field of catheterization and cardiac hemodynamics.

MAJ. ROBERT J. HALL, MC, USA

ELECTROCARDIOGRAM CLINICS. By Joseph E. F. Riseman, M.D., Ass't., Clinical Professor of Medicine, Harvard Medical School; and Elliot

L. Sagall, M.D., Instructor in Medicine, Harvard Medical School. 259 pages. The Macmillan Company, New York. Price \$10.50.

This book is limited in scope covering only Coronary Artery diseases and Pulmonary Infarction. There are four clinical sessions with presentations and discussions of from eight to ten clinical cases in each. The clinical titles are:

(1) Diagnosis and Treatment of Angina Pectoris; (2) The Role of the Electrocardiogram in Establishing the Diagnosis of Acute Myocardial Infarction; (3) Problems in the Diagnosis of Acute Myocardial Infarction; (4) The Role of the Electrocardiogram in the Diagnosis of Pulmonary Embolism.

These authors assume that basic fundamentals of electrocardiography are familiar to the readers and therefore none of these aspects are covered. The purpose of the book is to familiarize the general practitioner with the use of the electrocardiogram and some of the pitfalls and limitations as well as being of definite help in the clinical correlation in the conditions described above. This book was actually developed from transcriptions of electrocardiogram clinics attended by general practitioners. The discussions, as well as questions and answers, were edited and used. The tracings are well reproduced on fine quality paper.

This book has many excellent features in this particularly limited field, especially the discussion of the history and the clinical correlation of the total patients with suspected heart diseases. There also are excellent questions and answers regarding both the electrocardiogram and clinical manifestations of coronary heart disease. There are several statements and interpretations regarding the electrocardiogram that one could disagree with the authors. However, they are quite conservative and in general have many good teaching points within the book.

This work is considered excellent exercise for students, first year Medical Residents and general practitioners to use to correlate with their own patients with similar types of heart diseases.

COL. DOSS O. LYNN, MC, USA

RÉÉDUCATION PSYCHO-MOTRICE. EXERCICES EN SUSPENSION ET POULIE-THÉRAPIE. By Ch. Rocher, Ass't. Chief of Surgical and Orthopedic Clinic, Bordeaux, France. 102 pages, illustrated. Masson et Cie, Paris. Price 1,250 fr.

This small monograph is an exposition of the "spring therapy" first developed by Miss Guthrie Smith in the rehabilitation of joints. In principle the method depends upon complete relaxation, in suspension, of that portion of the limb proximal to the involved joint surface, so that the portion of the limb distal to the joint may be moved actively

or passively by means of pulleys in a horizontal plane which excludes the weight of the limb to be moved.

The laws of pulleys and the best position for suspending the limb as well as detailed instructions for the arrangement of the pulleys are presented in somewhat less than a hundred clear-cut illustrations. The method for determining the RM, the force sufficient to equilibrate the maximum power of the muscle or group of muscles under treatment, is carefully outlined. The indications and plan of treatment for re-education in poliomyelitic cases in painful stiff joint syndromes, in spastic conditions and in edema of the limbs are carefully outlined.

This small monograph is exceedingly simply presented and should be of extreme interest to those engaged in the problem of motor re-education.

HENRY MILCH, M.D.

PROGRESS IN ARTHRITIS. 34 contributors. Edited by John H. Talbott, M.D., and L. Maxwell Lockie, M.D. 456 pages. Grune & Stratton, New York and London. Price \$12.50.

The purpose of this volume is to provide discussion and current evaluation by recognized authorities on selected subjects in the broad field of arthritis, rheumatism and connective tissue disorders. It is edited by two of the foremost leaders in the field, John H. Talbott and L. Maxwell Lockie, who have also contributed chapters on subjects of their special interest, Gout and Rheumatoid Arthritis, respectively. In addition the book contains outstanding chapters which cover the histochemistry and clinical manifestations of the Collagen-Vascular disorders.

Other pertinent chapters include the Serological Reactions in Rheumatoid Arthritis, the Arthritides of Domesticated Livestock and their associations with human arthritides, the Medico-Legal Aspects of Trauma to the Joints and the Spine and the diagnosis and present day management of Gout, Rheumatoid Arthritis, Osteoarthritis, Shoulder-Hand Syndrome and Rheumatic Fever.

This book fills a definite void in the current literature pertaining to arthritis and illustrates the advancement of our knowledge in a dynamic area of medicine. It is a handsome volume that is easy to read and well illustrated. It is well-indexed and contains a fairly complete bibliography at the end of each chapter.

Progress in Arthritis should prove to be of great value to anyone who is interested in present day thinking concerning arthritis and connective tissue disorders.

CAPT. RAYMOND SCALETTAR, MC, USA

DIAGNOSTIC ANATOMY. By Weston D. Gardner, M.D., Associate Professor of Anatomy, Mar-

quette University School of Medicine. 376 pages. The C. V. Mosby Company, St. Louis. Price \$10.00.

In this book the author attempts to provide for general practitioners and internists a correlation of time proven facts of gross anatomy with clinical examination, study and diagnosis.

Doctor Gardner, who is both an anatomist and a clinician, is particularly well qualified to accomplish the purpose of emphasizing the important features of gross morphology which all physicians should know.

Covering the entire torso, system by system, in a dynamic and lucid manner and employing twenty simple but illustrative drawings, the author has succeeded admirably in condensing the subject of gross anatomy for clinical application.

This text will be of particular value to the general practitioners, internists and those sub-specialists who would like a readable review of the anatomy of systems they infrequently encounter. The facts presented by Doctor Gardner are standard ones that have and will endure. Hence this book will remain "new" for many years and will not soon be superseded by future editions.

CAPT. JULIAN LOVE, MC, USN, RET.

THE FIRST BOOK OF WORLD WAR I. By Louis L. Snyder, Professor of History at the City College of New York. 96 pages, illustrated. Frank Watts, New York. Price \$1.95.

This is a small book of pictures and a short history of World War I, how it began and relating the important events briefly. It gives a quick review for those who lived in those days and the highlights of the war for those who came afterwards.

The book is well done.

R. E. B.

REHABILITATION IN INDUSTRY. Edited by Donald A. Covalt, M.D., Professor, Dep't. of Physical Medicine and Rehabilitation, New York University College of Medicine. 14 contributors. 154 pages, illustrated. Grune & Stratton, New York and London. Price \$6.00.

A considerable amount of practical information can be obtained from this book covering related topics associated with industrial medicine. The format is presented in a readable, succinct manner. Basically the book consists of three parts: Industrial Injuries; Referral to Rehabilitation Center; Placement of the Disabled Workers.

The chapters on head and back injuries can profitably be read by dispensary officers, the whole book by individual medical officers.

The illustrations leave something to be desired.

The line drawings in the chapter on amputations are poor copies of the pictures in the booklet "Industrial Amputee Rehabilitation" compiled by Charles O. Bechtol. The illustrations are inadequate and inappropriate to the text. Despite this deficiency, the subject matter is presented in an intelligent manner, the information practical and up-to-date.

J. C. BRAY, M.D.

SOCIAL PSYCHIATRY IN ACTION: A THERAPEUTIC COMMUNITY. By Harry A. Wilmer, M.D., Ph.D., Captain, Medical Corps. U. S. Naval Reserve. Charles C Thomas, Springfield. 373 pages, illustrated.

The magnitude of the problem of therapy in mental illness has never yet in history been met with a sufficiency of trained therapists. In our age, the need for more psychiatrists, more money, more and better mental hospitals, and more research is repeatedly emphasized, with recognition at the same time of the economic and temporal difficulties in ever fulfilling that need.

The advent of group therapy gave some expectation of the accomplishment of more treatment with the available machinery.

The therapeutic community concept developed in Britain and the United States, turns to an unexploited source of energy and experience in human difficulties, the patient population itself, with the thought that the individual who has suffered through a given travail will be able to give significant assistance to a fellow sufferer.

It is a truism that a physician can, with sufficient patience and effort, come to understand a mental disturbance. But patients themselves, living together, can deal with their anxieties and cooperate in group toward emotional maturity, in the same way that communities traditionally have dealt with the realities of internal and external threatening forces.

The therapeutic community concept has burgeoned in this country in the past decade and with such varying interpretations and practices that redefinition has become necessary. Perhaps the purest practitioner of the social psychiatry pioneered by Maxwell Jones, Thomas Main, and T. P. Rees is Dr. Harry A. Wilmer who was able to carry out a nine month experiment at the U. S. Naval Hospital, Oakland, California, the Navy psychiatric center for the western United States and the Pacific theater. The psychiatric, social, psychological, and anthropological implications of that experiment are reported in this book.

In briefest outline the experiment was carried out on the admission ward of that hospital. Patients arrived at an unselected basis and all diagnoses were represented. They remained on the ward

approximately 10 days before reassignment to other wards for definitive treatment. The staff population was also a fluctuating one composed in the main of general duty nurses and corpsmen without special indoctrination or skills. After individual admission interviews virtually all therapy took place as a group endeavor on the ward.

The members of the ward community (staff and patients) sat down together each morning for 45 minutes of discussion, marked in many instances by extraordinarily perceptive and sophisticated insights by patients. The group was followed by an hour's staff discussion and analysis of the material produced as related to individual problems and to life on the ward. The patient's past performances may have been bizarre but in the therapeutic community all members were expected to behave within community-agreed-upon-norms. Seclusion, sedation, and most other restraints were eliminated and the social process was relied upon to re-establish self controls and to modify symptoms and disturbed behavior. Beyond these formally recognized therapeutic efforts, was the continuing attitude of the population that mutual trust and effort at understanding produced tangible improvement in the emotional climate and in the health of the individuals.

The Oakland experiment came under close observation within the Navy and from consulting psychiatrists, psychoanalysts, and anthropologists. Its technics hold promise of new approaches and new attitudes of treatment and, most promising of all, enlistment of an untapped source of therapeutic energy—the experiences in living of the patients themselves. Long term and definitive treatment programs are the next logical development.

CDR. THOMAS H. LEWIS, MC, USN

TEXTBOOK OF MICROBIOLOGY. 4th Ed. By Kenneth L. Burdon, Ph.B., Sc.M., Ph.D., Professor and Chairman, Department of Microbiology, Baylor University College of Medicine, Houston, Texas. 645 pages, illustrated. The Macmillan Company, New York. Price \$5.75.

The first edition of this popular textbook of microbiology appeared in 1932 and later editions in 1939 and 1947. This edition shows considerable revision especially in those chapters on bacterial morphology, physiology, genetics and classification; chemotherapy and antibiotics, and fungous and viral diseases.

The book is divided into four parts. Part one is headed "Elements of Microbiology" and includes chapters on history, classification, methods of cultivation, isolation and identification of bacteria, and descriptions of bacterial morphology, physiology and metabolism. Part two includes chapters on sources and modes of infection, sterilization and disinfection, and chemotherapy and antibiotics. Part

three is devoted to a discussion of infection, virulence, immunity, allergy and antigen-antibody reactions. Part four comprises about one-half the book and contains chapters on the microbiology of various diseases including those due to bacteria, fungi, viruses and rickettsiae. One chapter is devoted to protozoa and protozoal diseases.

At the end of each chapter is a list of references for supplemental reading and a group of review questions. The student will find these questions quite helpful in preparing for examinations.

The subject of medical microbiology is well covered but in comparatively few words. Explanations are clear and concise and the text is easy to follow. It is a book written for the student and in the words of the author it is designed "... to provide the basis for an understanding of the fascinating and sometimes unbelievable phenomena of microbic life and of host-microbe interrelationships."

COL. HUGH R. GILMORE, JR., USA, RET.

LUMBAR DISC LESIONS—PATHOGENESIS AND TREATMENT OF LOW BACK PAIN AND SCIATICA. 2nd Edition. By J. R. Armstrong, M.D., M.Ch., F.R.C.S., Orthopaedic Surgeon to the Metropolitan Hospital, London; Late Orthopaedic Specialist, Royal Air Force Medical Service. 244 pages, illustrated. The Williams & Wilkins Co., Baltimore, exclusive U.S. Agents. Price \$12.00.

Among the many reported studies of the pathology of the lumbar discs which have appeared in the past 20 years, none has stated more clearly or succinctly than Dr. Armstrong the fundamental facts concerning the basic pathologic anatomy and treatment, either conservative or operative. This excellent book, didactic, somewhat repetitive, and based on an experience demanding respect (1000 cases) should have a sobering effect on both the pessimist who thinks a disc lesion is always a lost cause and the exuberant "operator" who looks to his scalpel for the sure-fire answer.

The anatomy of the lesion and the clinical syndrome of the herniated lumbar disc are discussed in a detailed, lucid manner. The author places little reliance on myelography and he decries discography altogether. A thorough knowledge of the patient's history, the findings upon physical examination, and roentgenographic signs are the bases for diagnosis. Differential diagnosis must consider a wide range of common conditions. Conservative treatment is advocated, and that means total bed rest, even with immobilization. That failing, operation with adequate exposure is justified and indicated. The book is especially well illustrated, particularly those parts dealing with operative technique.

This would be an effective book in the hands of all neurosurgical and orthopaedic residents and

young doctors beginning the practice of those specialties. It might even do some good if read by some of the "old experts."

JOHN MARTIN, M.D.

MANUAL FOR THE APHASIA PATIENT. By Mary C. Longerich, Ph.D., Speech Department, College of Medical Evangelists, School of Medicine, Los Angeles, Calif. 277 pages. The Macmillan Company, New York. 1958. Price \$4.75.

This manual is a textbook for speech therapists and is also written for the patient and his family. The subject matter is divided into three units. The material in Unit I, describes the psychological implications of Aphasia, the role of the family, the importance of making the patient feel he is wanted and made a member of the group.

The second unit is given over to the clinicians: (1) how she may help the aphasic patient, (2) principles and materials for instructions and (3) therapy for receptive and expressive Aphasia.

The third unit consists of basic drills. This outline of clinical instructions and drills offer ideas that could be well used by the speech therapist.

Unfortunately the manual is too general and geared to the professional level. The average person would find the book too technical. Possibly, however, with instructions from the clinician, the family can use this book effectively. The book is a compilation of drill material and provides a guide to some of the understandings and technics in Aphasia therapy. The format adapts itself well as a supplementary textbook for the Aphasia Clinician.

LCDR. ANNA SANKOVITCH, MSC, USN

LE PNEUMOTHORAX SPONTANE NON TUBERCULEUX DE L'AULTE ET SON TRAITEMENT. By Andre Meyer, Physician of the Paris Hospital; and J. P. Nico and J. Carraud. 144 pages, with 32 figs. Masson et Cie, Paris. 1958. Price 1,950 fr.

The monograph reviews non-tuberculous spontaneous pneumothorax from the world literature based on personal experience of 150 cases. The authors give detailed information on 53 cases seen from 1949 to 1954.

Etiology is discussed emphasizing emphysema and congenital or acquired broncho-pulmonary affections. Complete laboratory and roentgenographic information is necessary for treatment decisions.

Talc pleural symphysis with thoracoscopy is stressed with less use of continuous suction by indwelling catheter or thoracotomy and resection than as presented in recent American reviews.

Photographs of anatomical drawings and of chest roentgenograms are excellent. The overall consideration is complete but might have been considerably condensed.

COL. E. G. BEACHAM, MC, Md., N.G.

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